





# i n t e r o f f i c e

## MEMORANDUM

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**To:**  Todd Sando, P.E., State Engineer  
 Michelle Klose, P.E., Assistant State Engineer  
 John Paczkowski, P.E., Chief, Regulatory Section

**From:**  Laura C. Ackerman, P.E., Water Resource Engineer

**Subject:** Appeal of Drain Permit #3863 – Devils Lake East End Outlet

**Date:** July 19, 2012

### Introduction

Application to Drain #3863 was received by the State Engineer on August 31, 2011, from Governor Jack Dalrymple, Chairman of the North Dakota State Water Commission (SWC), for the construction of the Devils Lake East End Outlet (EEO), located northwest of Tolna, ND in Ramsey, Benson, and Nelson Counties (see attached map). The State Engineer determined that the project was of statewide and interdistrict significance, pursuant to N.D. Admin. Code § 89-02-01-09, and forwarded the application to the Ramsey and Towner County Water Resource Districts on October 17, 2011, pursuant to N.D. Admin. Code § 89-02-01-08. N.D. Admin. Code § 89-02-01-08 requires the State Engineer to refer the application “to the appropriate district within which is found a majority of the watershed or drainage area of the pond, slough, lake, or sheetwater, or any series thereof.” The majority of the project watershed was determined to lie in Ramsey and Towner Counties. The Ramsey and Towner County Water Resource Districts held a joint hearing on December 1, 2011, approved the application on January 19, 2012, and sent it back to the State Engineer for further processing. The State Engineer evaluated the application in accordance with N.D. Admin. Code § 89-02-01-09.2, and approved the application on April 10, 2012. Notice of decision and full text of the decision was provided in accordance with N.D. Admin. Code § 89-02-01-09.5. Pursuant to N.D. Admin. Code § 89-02-01-09.6, People to Save the Sheyenne and Ad Hoc Downstream Group submitted requests for a State Engineer’s hearing, which were received by the State Engineer on May 9, 2012 and May 11, 2012, respectively. The State Engineer scheduled a hearing for June 22, 2012 as requested and provided notice in accordance with N.D. Admin. Code § 89-02-01-09.7. The purpose of the hearing was to receive evidence from People to Save the Sheyenne and Ad Hoc Downstream Group that supports their claim that they were factually aggrieved by the State Engineer’s decision and the material facts or conclusions they believe are in error as required by N.D. Admin. Code § 89-02-01-09.6. The following text provides more details on the hearing, testimony, and final recommendation to the State Engineer.

### The Project

The EEO has a maximum capacity of 350 cubic feet per second (cfs) and pumps water from East Devils Lake to Tolna Coulee, which is a tributary of the Sheyenne River. The purpose of this

project is to minimize further flood damage resulting from the high water level of Devils Lake and to reduce the risk of a natural overflow to the Sheyenne River.

The EEO will be operated in conjunction with the existing Devils Lake West End Outlet (WEO) (Drain Permit #3457), which was upgraded to a maximum capacity of 250 cfs in 2010. This will bring the total discharge capacity from the two pumped outlets to 600 cfs. The two pumped outlets may also be operated in conjunction with the proposed Stump Lake Gravity Flow Emergency Water Transfer Channel (later referred to as SLO for “Stump Lake Outlet”) (Application to Drain #3864) if the application is approved.

The new EEO intake and pump station is located in the NE¼ NW¼ of Section 8, Township 151 North, Range 62 West (Odessa Township), Ramsey County. The intake structure withdraws water from the southern end of East Devils Lake. The pump station consists of four 75-cfs pumps and one 50-cfs pump. The minimum operating level of the intake structure is elevation 1446.3 feet. (All elevations included in this memo are referenced to NGVD 29. To convert from NGVD 29 to NAVD 88, add 1.2 feet.)

The pump station discharges water into a 96-inch diameter pipeline. The pipeline starts in Section 8, Township 151 North, Range 62 West, where it follows the border between Ramsey County (Odessa Township) and Benson County (Minco Township). It continues through Sections 9, 10, 11, 13, 14, and 24, Township 151 North, Range 62 West (Minco Township), Benson County and ends in Section 19, Township 151 North, Range 61 West (Leval Township), Nelson County. The beginning 9,314 feet of pipeline is comprised of steel pipe, and the remaining 18,075 feet is reinforced concrete pipe. The total length of the pipeline is approximately 5.2 miles. There is a minimum 100-foot wide permanent easement along the pipeline alignment.

The outlet structure is located in the SW¼ NW¼ of Section 19, Township 151 North, Range 61 West (Leval Township), Nelson County. The pipeline discharges water into a rock filter structure. Water then flows into the terminal structure before discharging into Tolna Coulee. Water flows about 12 miles through Tolna Coulee before discharging into the Sheyenne River in the NE¼ of Section 30, Township 150 North, Range 60 West (Osago Township), Nelson County.

### **Hearing and Testimony**

The State Engineer’s hearing was held on June 22, 2012, from 10 a.m. to 12:17 p.m. in the basement conference room of the State Office Building, Bismarck. State Engineer, Todd Sando, presided over the hearing. Representing the SWC was Bruce Engelhardt, while Richard Betting represented People to Save the Sheyenne, and Madeline Luke represented Ad Hoc Downstream Group. People to Save the Sheyenne and Ad Hoc Downstream Group are hereinafter referred to as the “Petitioners.” The hearing was recorded and it should be noted that the Petitioners’ oral testimony was primarily a summarization of their written testimony. The written testimony states specifically that it is the testimony of both People to Save the Sheyenne and Ad Hoc Downstream Group. The written testimony is included as an attachment to this memorandum. Both the SWC and Petitioners submitted additional exhibits (exhibit list provided at end of

memorandum). The State Engineer's review of the Petitioners' appeal to the issuance of Drain Permit #3863 considers all written and oral testimony as well as any exhibits presented at the hearing.

## **I. List of Aggrieved Individuals**

The Petitioners recited a list of individuals (oral testimony only) who believe they are aggrieved by operation of the outlets. These individuals also provided comments on a DVD that was submitted by the Petitioners as an exhibit. The list of individuals and their grievances, as provided in oral testimony and on the DVD, is as follows:

- Mary Ann Sheets-Hansen (Resident of Valley City) – Loss of property value
- Jean Legge (Guides bird watching tours along Sheyenne Valley) – Loss of value to the river for birding business
- Robert Werkhoven (Resident of Valley City) – Disruption of transportation in Valley City and commerce in Valley City from flooding and erosion
- Philip Leitner (Resident of Valley City) – Disruption of county roads and commerce because of flooding and erosion
- Leon Pitlick (Business owner in Valley City) – Loss of recreational opportunity, as well as loss of business because of flooding
- Wanda Etzel (Farm owner north of Valley City) – Loss of recreation, as well as impacts on ranching operation
- George Friedoff (Owner of Bayshore Resort on Lake Ashtabula) – Loss of water well from poor water quality, as well as recreational problems on Lake Ashtabula
- Dr. Andre DeLorme (Biology professor at Valley City State University) – Loss of biota in the river
- Neil Tangen (Farmer on Kathryn Road) – Loss of cattle business because of chronic flooding and erosion
- Jim Stevens (Rancher on Kathryn Road) – Risk of increased summer flood
- Gary Krapu (Research biologist) – Loss of river biota and general habitat

It was not identified in either the DVD or oral testimony if these individuals are members of People to Save the Sheyenne or Ad Hoc Downstream Group. In addition, there was no context to the individuals' comments in the DVD because it was not made known what questions they were being asked, which project they were commenting on, or when these comments were recorded. The comments from the individuals above did not present evidence to quantify or demonstrate how they were factually aggrieved by the State Engineer's decision, nor did they state which material facts or conclusions are believed to be erroneous and why they are believed to be erroneous as required in the drain permit appeal process under N.D. Admin. Code § 89-02-01-09.6. The individuals present at the hearing representing the Petitioners also did not present any information on how they were personally aggrieved by the State Engineer's decision.

## **II. The Declaration of State of Emergency**

The Petitioners' comments regarding this issue are on pages 5 through 12 of their written testimony. It should be noted that grievances pertaining to the Declaration of State of

Emergency were not raised as an issue when the Petitioners requested the hearing. In their written testimony, the Petitioners state that Governor Dalrymple signed Executive Order 2011-08 (misquoted throughout written and oral testimony as Executive Order 2011-01) on April 29, 2011, pursuant to N.D.C.C. § 37-17.1-05(6)(a) (misquoted as N.D.C.C. § 37-17-05(6)(a) in written testimony). The Governor's order suspended N.D. Century Code chapters dealing with state purchasing practices; architect, engineer, and land surveying services; and public improvement bids and contracts as they apply to the SWC in order to design and build the EEO.

The Petitioners state that Executive Order 2011-08 does not suspend N.D.C.C. § 61-32-03, which is the statute that requires a permit before draining more than 80 acres and has exemptions for state and federal agencies, nor does it suspend N.D. Admin. Code § 89-02-01-09.12, which provides a two-year time limit to complete construction of a project after the permit has been approved. The Office of the State Engineer (OSE) agrees that Executive Order 2011-08 does not suspend N.D.C.C. § 61-32-03 or N.D. Admin. Code § 89-02-01-09.12. The chapters suspended by Executive Order 2011-08 are not relevant to the drain permit appeal process, and therefore, have no bearing on the State Engineer's decision.

The Petitioners continue by commenting on the first eight "WHEREAS" statements in Executive Order 2011-08. Their comments primarily allude to their beliefs on the following: the ineffectiveness of the EEO, the capacity of drained wetlands in the upper basin, that the EEO does not address the reason for the high water of Devils Lake, and that a catastrophic overflow through the Tolna Coulee Control Structure is unlikely and this should not be used as a reason to construct the EEO. They conclude this section by saying that Executive Order 2011-08 was used to promote the SWC's agenda to drain Devils Lake water to the Sheyenne River instead of dealing with the actual causes of high water at Devils Lake.

The Executive Order suspending the public bidding laws is not being challenged here, nor is it relevant to the drain permitting process. The discussion on Executive Order 2011-08 does not provide evidence that material facts or conclusions are erroneous nor does it show how the Petitioners are factually aggrieved by the State Engineer's decision as required in the drain permit appeal process under N.D. Admin. Code § 89-02-01-09.6.

### **III. Conflicts of Interest**

The Petitioners' comments regarding conflicts of interest are on pages 12 through 16 of their written testimony. It should be noted that grievances pertaining to this subject were not raised as an issue when the Petitioners requested the hearing. In their written testimony, the Petitioners present citations from N.D.C.C. §§ 61-02-04, 61-02-05, and 61-03-01. N.D.C.C. § 61-02-04 provides that the SWC "shall consist of the governor, agriculture commissioner, and seven other members to be appointed by the governor." N.D.C.C. § 61-02-05 provides that the "governor shall be the chairman . . . and [t]he state engineer shall be the secretary" of the SWC. N.D.C.C. § 61-03-01 provides that the "state engineer shall be appointed" by the SWC. The Petitioners argue that because the State Engineer is responsible for reviewing drain permit applications, and also is appointed by the SWC, the review process for an application to drain submitted by the SWC lacks integrity.

The N.D. Century Code provides the State Engineer with both SWC duties and separate regulatory duties, such as the review of construction permits, sovereign land permits, and water permits, in addition to drain permits. In the case of the EEO, SWC staff were involved with the design and construction of the project. SWC staff also provided information for the drain permit review to separate State Engineer staff. The State Engineer staff reviewed the drain application pursuant to the drainage laws as outlined in N.D. Admin. Code chapter 89-02-01.

The N.D. Century Code that provides the powers and duties of the State Engineer were created by the legislature and can only be changed by the legislature, not the drain permitting process. While the Petitioners' opinion is noted, this subject is beyond the scope of this review. The discussion on conflicts of interest does not provide evidence that material facts or conclusions are erroneous nor does it show how the Petitioners are factually aggrieved by the State Engineer's decision as required in the drain permit appeal process under N.D. Admin. Code § 89-02-01-09.6.

#### **IV. Permitting After Construction**

The Petitioners' comments regarding this subject are on pages 16 through 21 of their written testimony. It should be noted that grievances pertaining to this subject were not raised as an issue when the Petitioners requested the hearing. The Petitioners cite several news articles and provide a timeline for the drain permit process and construction of the drain. This provides evidence that construction began in the summer of 2011 and that the application was not approved until April 10, 2012. The Petitioners assert that constructing before the drain permit was approved is a violation of N.D. Admin. Code §§ 89-02-01-03(1) & (3) and 89-02-01-09.12.

N.D. Admin. Code § 89-02-01-03(1) provides:

A permit is required before any person may construct a drain for the purpose of draining waters from a pond, slough, lake, or sheetwater, or any series thereof, having a watershed of 80 acres ... or more.

N.D. Admin. Code § 89-02-01-03(3) provides:

A permit is required before any person may drain, cause to be drained, or attempt to drain any meandered lake.

N.D. Admin. Code § 89-02-01-05 provides for exceptions to when a drain permit is required, specifically, N.D. Admin. Code § 89-02-01-05(2) provides:

The provisions of section 89-02-01-03, except subsection 3, do not apply to any drain constructed under the direct and comprehensive supervision of the federal or state agencies specified in this section.

The SWC is specified as one of the agencies under N.D. Admin. Code § 89-02-01-05(2) that is "deemed capable of providing supervision and analyzing downstream impacts", and is exempt from all provisions of N.D. Admin. Code § 89-02-01-03, except subsection 3. Therefore, N.D.

Admin. Code § 89-02-01-03(1), which requires a permit to be obtained prior to construction of a drain does not apply. However, N.D. Admin. Code § 89-02-01-03(3), which requires a permit before a person may drain a meandered lake, does apply to the SWC and EEO.

The SWC did not drain any water through the EEO until the beginning of June 2012 after the State Engineer had approved the drain permit. The SWC did not violate N.D. Admin. Code § 89-02-01-03(3) because the rule specifies that a permit is needed “before any person may drain.” Again, the SWC did not engage in the action of draining until the permit was approved.

N.D. Admin. Code § 89-02-01-09.12 provides:

The recipient of a permit to drain under this chapter shall complete construction within two years of the date the decision granting the permit is final. The two-year period does not begin until any appeal of the state engineer’s decision or board’s decision is completed, nor does it run during the course of any other legal action brought to challenge the state engineer’s decision or board’s decision or halt or modify the project.

The Petitioners’ oral and written testimony repeatedly misquotes N.D. Admin. Code § 89-02-01-09.12 to say the rule specifies a recipient of a permit shall “commence” construction within two years of the date the permit becomes final. N.D. Admin. Code § 89-02-01-09.12 uses the word “complete”, not “commence.” A violation of this rule did not occur, as the SWC did complete construction within the required time limit.

There is no disagreement that construction of the EEO started before the permit was approved; however, there is no requirement for the SWC to have a permit prior to construction. It is evident after reviewing the testimony and associated administrative rules presented by the Petitioners that the SWC did not violate any of those rules by constructing the EEO before a permit was approved. The discussion on permitting after construction does not provide evidence that material facts or conclusions are erroneous nor does it show how the Petitioners are factually aggrieved by the State Engineer’s decision as required in the drain permit appeal process under N.D. Admin. Code § 89-02-01-09.6.

## **V. Absence of Investigations**

The Petitioners’ comments regarding this subject are on pages 21 and 22 of their written testimony. In their written testimony, the Petitioners quote N.D.C.C. § 61-32-03 and emphasize that “[a] permit may not be granted until an investigation discloses that the quantity of water which will be drained from the pond, slough ... will not flood or adversely affect downstream lands.” They also emphasize that “the water resource board may not issue a permit until flowage easements are obtained.” Finally, they highlight that “[a]n owner of land proposing to drain shall undertake and agree to pay the expenses incurred in making the required investigation.” They state that an investigation must be conducted and results of that investigation must affirmatively demonstrate that increasing the capacity of the SWC’s Devils Lake outlets to 600 cfs “will not flood or adversely affect downstream lands.”

The Petitioners state (pg. 22) that it is insufficient to issue a permit “based upon an absence of evidence that increasing the capacity of the outlets to 600 cfs will not flood or adversely affect downstream lands, or upon a finding that the flooding or adverse effects on downstream lands are not significant or that they are necessary or justified in order to address flooding at Devils Lake.” They also say that there is no provision “for issuing a permit based upon speculative and unsubstantiated claims that flooding or other adverse effects can be avoided.”

In response to the arguments that the requirements of N.D.C.C. § 61-32-03 have not been fulfilled, it should be noted that N.D.C.C. § 61-32-03 provides:

**This section does not apply** to the construction or maintenance of any existing or prospective drain constructed under the supervision of a state or federal agency, as determined by the state engineer.

Emphasis added.

The administrative code was developed by the State Engineer through a public rule-making process to establish rules for processing applications for drain permits required by N.D.C.C. § 61-32-03. The administrative code provides exemptions for specific agencies and recognizes in N.D. Admin. Code § 89-02-01-05(2) that the SWC is an agency that is “capable of providing supervision and analyzing downstream impacts.”

During the Ramsey and Towner County Water Resource Districts’ and the State Engineer’s hearings the SWC presented information on how they are addressing downstream impacts through their Devils Lake Outlet Mitigation Plan. Where non-exempt parties are required to provide the investigation prior to the drain permit being granted, there is flexibility for those state and federal agencies listed under the exemption in the administrative code to have other methods to address potential impacts.

The discussion regarding this subject does not provide evidence that material facts or conclusions are erroneous nor does it show how the Petitioners are factually aggrieved by the State Engineer’s decision as required in the drain permit appeal process under N.D. Admin. Code § 89-02-01-09.6.

## **VI. Investigation and Analysis of the Eight Factors Considered to Issue Drainage Permits**

N.D. Admin. Code § 89-02-01-09.2 provides the eight factors the State Engineer must consider in the analysis of an application to drain that has been determined to be of statewide or interdistrict significance:

1. The volume of water proposed to be drained and the impact of the flow or quantity of this water upon the watercourse into which the water will be drained.
2. Adverse effects that may occur to the lands of lower proprietors. This factor is limited to the project’s hydrologic effects such as erosion, duration of

floods, impact of sustained flows, and impact on the operation of downstream water control devices.

3. The engineering design and other physical aspects of the drain.
4. The project's impact on flooding problems in the project watershed.
5. The project's impacts on ponds, sloughs, or lakes having recognized fish and wildlife values.
6. The project's impact on agricultural lands.
7. Whether easements are required.
8. Other factors unique to the project.

During the original evaluation of Application to Drain #3863, a memorandum, dated March 22, 2012, was provided to the State Engineer from Laura Ackerman, Water Resource Engineer, which addressed the eight factors listed above. The subsequent analysis includes the text from the March 22, 2012 memorandum for each of the eight factors, followed by further evaluation of each factor based on the Petitioners' testimony at the hearing on what they believe to be erroneous facts or conclusions.

**Factor #1 - The volume of water proposed to be drained and the impact of the flow or quantity of this water upon the watercourse into which the water will be drained.**

The March 22, 2012 memorandum to the State Engineer stated (pg. 5) in consideration of this factor:

The maximum discharge for the EEO will be 350 cfs. Two crossings in Nelson County between the EEO and the Sheyenne River, County Road #4 and the crossing just north of Tolna, need to be upgraded to convey the additional 350 cfs (transcript p. 45). In regards to Factor #1, the Ramsey County WRD, in a December 29, 2011 letter, asked the SWC if there was a maximum flow specified for the Sheyenne River which would cause the pumps to be shut off and if flowage easements are going to be obtained for excess flows. The SWC's response, dated January 6, 2012, stated that a maximum flow for the Sheyenne River has not been set. There is still some uncertainty with the proposed SLO and the amount of water that may be released by all three outlets. The channel capacity of the Sheyenne River in some areas upstream of Baldhill Dam is approximately 600 cfs, although most of the channel can carry significantly more. There is anticipation that natural flows in the Sheyenne River combined with flows from one or more of the outlets may exceed bank capacity in some areas. The SWC plans to address flooding caused by the outlets through their mitigation plan. Flowage easements may become a part of the mitigation plan, but initially will be handled through the application process in the mitigation plan because of



the unknown base flow quantities in the Sheyenne River and unknown combined outlet quantities.

The preliminary operating plan for the EEO limits operation of the pumps in order to protect downstream critical infrastructure. Operation is also limited by a downstream water quality constraint for the protection of aquatic life, which requires the concentration of sulfate to be less than 750 mg/l. The operating plan for the WEO specifies the same constraints.

Downstream flows will be monitored with existing gages on the Sheyenne and Red Rivers at the following locations: Flora (upstream of WEO), Bremen (downstream of WEO), Warwick, Cooperstown, Below Baldhill Dam, Lisbon, Sheyenne River Diversion near Horace, Harwood, Halstad, and Pembina. Another gage will be installed along the Tolna Coulee to monitor flows. The sulfate monitoring locations have not been finalized, but they could include any of the previously mentioned sites along with possible locations at Devils Lake, Lake Ashtabula, and near the Valley City water treatment plant.

It should be noted that operation of the outlets is overseen by the Devils Lake Outlet Management Advisory Committee (Committee), which includes ten people. The Committee is comprised of three members appointed by the Governor representing interests affected by downstream impacts of operating the outlets, the State Engineer or designee, one member appointed by the Red River Joint Water Resource Board, one member appointed by the Devils Lake Joint Water Resource Board, one member appointed by the Upper Sheyenne River Joint Water Resource Board, one county commissioner from Ramsey County, one county commissioner from Benson County, and one representative of the Spirit Lake Nation.

The Petitioners' comments regarding Factor #1 are on pages 26 through 28 of their written testimony. The Petitioners make statements pertaining to the volume of water that could be drained by the EEO, WEO, and SLO. The combined flow between the existing EEO and WEO is a maximum of 600 cfs, with 250 cfs allocated to the WEO and 350 cfs allocated to the EEO. It should be noted that the SLO, which has a design capacity ranging from 0 to 668 cfs, has only been proposed, and has been neither permitted nor constructed.

Engelhardt, in his testimony, stated that the EEO would need to be operated simultaneously with the WEO in order to meet water quality standards of the Sheyenne River. Therefore, even though Drain Permit #3863 is only for the EEO, which would be able to operate alone only if the flow and water quality conditions on the Sheyenne River allow, operation of the EEO will primarily be dependent on the WEO. Therefore, it is appropriate to consider a total flow of 600 cfs from the two outlets in combination as well as considering the 350 cfs from the EEO in isolation.

The Petitioners state in their written testimony (pg. 26):

The monthly average flow in the Sheyenne River for the last 62 years for June through November ranges from 79 cfs to 255 cfs, **so the addition of 600 cfs from Devils' [sic] Lake is very significant.**

Emphasis added.

However, they state later (pg. 33):

In regard to the magnitude of a natural spill at the Tolna Coulee, U.S. Army Corps of Engineers modeling indicates that if the lake were full at 1458 feet above msl and 600,000 acre feet inflow occurred, the highest inflow recorded to date, **the overflow would be about 600 cfs.** The overflow would occur in August and taper to about 300 cfs by December of that year (*Project Information Report Advance Measures Tolna coulee, Nelson County, ND, March 2011 page 7*). **This is hardly a catastrophe for the downstream communities.**

Emphasis added.

As stated above, a maximum flow on the Sheyenne River has not been specified. The Petitioners raise concerns about the impact of this flow and question whether or not there is a hydraulic model, such as a HEC-RAS model, for the entire Sheyenne River. In a January 6, 2012 letter from Jonathan Kelsch, SWC, to Paul Becker, Chairman of the Ramsey County Water Resource District, Kelsch states that an inundation analysis was performed for the Sheyenne River above Baldhill Dam with a U.S. Army Corps of Engineers hydraulic model. He also states in the letter that a hydraulic model for the lower Sheyenne River, below Baldhill Dam, is not readily available.

A hydraulic model does exist for the entire Sheyenne River. However, the hydraulic model for the lower Sheyenne River is currently under evaluation by the U.S. Army Corps of Engineers. According to Engelhardt's testimony, the hydraulic model will be used to carry out the mitigation plan and determine landowner compensation based on the percent of damage that can be attributed to the EEO and WEO. Therefore, the SWC has the tools to assess potential hydrologic effects caused by both outlets.

The Petitioners presented concerns pertaining to downstream road crossings across the upper Sheyenne River (pg. 27). The SWC is currently working with Nelson County to increase the capacity of some road crossings. If it is determined that the capacity of other downstream road crossings need to be increased due to operation of the EEO or WEO, the SWC will be responsible for addressing those issues, and has committed to addressing those issues within the mitigation plan.

The Devils Lake Outlet Management Advisory Committee, mentioned above and in the March 22, 2012 memorandum, was created by N.D.C.C. ch. 61-36 when the WEO was established. A newer "Outlets Advisory Committee" not mentioned in the March 22, 2012 memorandum was established after the memorandum had been written.

The Devils Lake Outlets Advisory Committee was created by Governor Dalrymple by Executive Order 2012-03 on April 25, 2012. The “Outlets Advisory Committee” was created for the EEO and any future outlets and consists of 15 members: the ND governor or governor’s designee, Minnesota governor or governor’s designee, Manitoba premier or premier’s designee, and one representative each from Benson County, Ramsey County, Towner County, Nelson County, Devils Lake Joint Board, Spirit Lake Nation, City of Devils Lake, Barnes County, Valley City, Lisbon or Fort Ransom, Fargo, and Grand Forks. Executive Order 2012-03 states, “The committee shall advise the Governor and the State Water Commission regarding operation of all Devils Lake outlets according to a comprehensive management plan.”

According to Engelhardt’s testimony, both committees will have input regarding operations, including: (1) Setting maximum flows on the Sheyenne River, (2) Operating to ensure compliance with the North Dakota State Health Department’s sulfate constraint, and (3) Operation of the outlets should a natural overflow occur.

In summary, the SWC is aware that natural flows in combination with any outlet flows may exceed bank capacity in some areas along the Sheyenne River. Because of this, the SWC is prepared to use their mitigation plan and hydraulic model to address adverse effects that may be caused by the volume of water discharged by any of the outlets. Again, the operation of the WEO will be overseen by the Devils Lake Outlet Management Advisory Committee and operation of the EEO will be overseen by the Devils Lake Outlets Advisory Committee, both of which contain upstream and downstream stakeholders.

**Factor #2 - Adverse effects that may occur to the lands of lower proprietors. This factor is limited to the project’s hydrologic effects such as erosion, duration of floods, impact of sustained flows, and impact on the operation of downstream water control devices.**

The March 22, 2012 memorandum (pg. 6) addressed this factor:

The Devils Lake Outlet Mitigation Plan addresses possible adverse effects that may occur to downstream property. If a downstream landowner becomes aware of a possible problem on their land that may be related to Devils Lake outlet operations, they should document the problem, complete an Outlet Mitigation Application form, and submit it to the SWC. SWC staff will review the application and determine the impact, if any, from the outlets through the analysis of the known flows in the river and the known flows from any of the outlets during the time period when the problem occurred. The Devils Lake Outlet Mitigation Plan and application form are available on the SWC website.

The Petitioners’ comments regarding Factor #2 are on pages 28 through 31 of their written testimony. The Petitioners note that the U.S. Army Corps of Engineers’ 2003 *Final Devils Lake, North Dakota, Integrated Planning Report and Environmental Impact Statement* (Pelican Lake EIS) is the only comprehensive document enumerating benefits, alternatives, mitigation, and cost benefit analysis conducted for the Devils Lake issue. They also indicate that the State Engineer’s

analysis failed to address every possible effect identified in the Pelican Lake EIS, and they provide 12 citations from the Pelican Lake EIS.

The Pelican Lake EIS was created for the U.S. Army Corps of Engineers' proposed outlet from Pelican Lake to the Sheyenne River, which is a different project that was never constructed and much of the information provided in the environmental document is beyond the scope of the drainage permitting process. The State Engineer does not produce environmental impact statements when reviewing drainage permits and there was not one produced for this drainage permit. Also it is not necessary that every adverse effect be eliminated before the State Engineer issues a permit to drain. N.D. Admin. Code 89-02-01-09.2 requires that the State Engineer consider adverse effects in the decision process. The record points to the fact that potential adverse effects were considered and that the SWC has a plan to mitigate adverse impacts caused by hydrologic effects that may occur to downstream landowners.

In regards to mitigating adverse effects downstream, Engelhardt testified during the hearing that aerial photos are available to assist in quantifying downstream erosion. As stated earlier under Factor #1, hydraulic models will also be utilized to determine the impact of flooding caused by the outlets to downstream lands. The Petitioners expressed concern about the outlets exacerbating summer flooding along the Sheyenne and Red Rivers. According to the mitigation plan, close attention will be paid to local weather predictions while the outlets are operating and the outflow will be adjusted to mitigate the risk of compounding high flow problems.

In addition, the Petitioners cite a January 25, 2010 letter from the Cass County Joint Water Resource District to the Ramsey County Water Resource District, concerning a different project. This comment letter was submitted to the Ramsey County Water Resource District when they were reviewing Drain Permit #3457 for the upgrade of the WEO, and it expressed concern that operation of the WEO would increase erosion of the Sheyenne Diversion. It should be noted that the SWC provided cost share assistance to repair erosion damage to the Sheyenne Diversion, which had been occurring before operation of the WEO.

The SWC will use their mitigation plan to mitigate potential adverse effects as spelled out in Factor #2 that occur to the lands of downstream proprietors. It is recommended that a condition be added to the permit that requires the SWC to continue monitoring erosion of the Sheyenne River, in addition to monitoring erosion of the Tolna Coulee downstream of the EEO's discharge point for the duration of project operation. According to the mitigation plan, the SWC gathered baseline conditions along the Sheyenne River for the purposes of erosion mitigation. The mitigation plan also states that aerial surveys for documenting erosion problem areas have been conducted over the last decade, with the most recent one being in 2011. A hydraulic model will be used to determine the effect of flooding on downstream land that may occur due to operation of the outlets.

### **Factor #3 - The engineering design and other physical aspects of the drain.**

The March 22, 2012 memorandum (pg. 6) stated:

A description of the design is provided under the “Project Description” section above. Professional engineers, registered to work in the state of North Dakota, have designed the EEO. These engineers work closely with other professional engineers, also registered to work in the state of North Dakota, as well as staff at the SWC. Therefore, the design meets accepted engineering standards and practices.

The Petitioners’ comments regarding Factor #3 are on pages 31 and 32 of their written testimony. The Petitioners state in their written testimony that they hired an engineering firm, Lidstone and Associates, to review the Army Corps of Engineers’ Tolna Coulee Control Structure operating plan and technical data. The Tolna Coulee Control Structure, positioned near the natural overflow location for Devils Lake, contains stoplogs that will be removed as erosion occurs downstream of the control structure. They state that the EEO enters the Tolna Coulee 1,000 to 1,200 feet downstream of the high point on the Tolna Coulee. Lidstone and Associates’ findings were cited as:

The physical proximity of the East End Outlet to the topographic high points and the erodibility of the material in the coulee could increase the threat of headcutting through the high points during more moderate flows through the Tolna Coulee. This would not constitute ‘natural erosion’ but rather man-made erosion with the potential to significantly impact the operation of the USACE’s grade control structure.

When the EEO operates, any erosion that may occur is likely to occur downstream of the insertion point where water drains into the Tolna Coulee. The high point on Tolna Coulee is at least 1,000 feet upstream of the location where the EEO discharges water into Tolna Coulee; therefore, it is believed to be unlikely that operation of the EEO would hasten erosion of the coulee and removal of stoplogs from the Tolna Coulee Control Structure.

As stated earlier under Factor #2, it is recommended that a condition be added to the permit that requires the SWC to monitor erosion downstream of the EEO’s discharge point for the duration of project operation. The existing SWC’s mitigation plan addresses the effects of erosion caused by the EEO.

**Factor #4 - The project’s impact on flooding problems in the project watershed.**

The March 22, 2012 memorandum (pgs. 6-7) stated:

Operated at full capacity for seven months (April to November), the EEO would be capable of removing 145,000 acre-feet of water. Using a more conservative five-month operating time period would result in 104,000 acre-feet of water removed from Devils Lake by the EEO. If both the EEO and WEO operated for five months, approximately one foot of water would be removed at a lake elevation of 1454.0 feet.

Besides having a beneficial effect on the Devils Lake Basin, the EEO would also benefit the downstream landowners along the Sheyenne and Red Rivers by decreasing the likelihood of water spilling uncontrollably at the natural outlet location where the water quality is the poorest in comparison to the rest of the lake. The SWC's objective is to remove water from Devils Lake while maintaining river levels and water quality at acceptable levels downstream. The EEO is part of the "three-pronged approach". When combined with upper basin storage and infrastructure protection, it is considered an important part of the solution to the flooding problems experienced in the Devils Lake Basin.

The Petitioners' comments regarding Factor #4 are on pages 32 through 34 of their written testimony. In their testimony, the Petitioners express their resentment towards the statement above that "the EEO would also benefit the downstream landowners along the Sheyenne and Red Rivers by decreasing the likelihood of water spilling uncontrollably at the natural outlet location where the water quality is the poorest" because of the State's plan to construct the SLO, which would release that exact poorest quality water before a natural overflow. It is understood that the Petitioners believe the above statement is disingenuous; however, operation of the EEO and removal of water from Devils Lake will reduce the chance of a natural overflow and possibly decrease the need for the SLO.

The Petitioners also comment on the lack of wetland restoration and upper basin storage in the Devils Lake Basin. They also say that the state will not authorize the analysis of 2009 LIDAR data of the Devils Lake Basin that would quantify and identify areas that could retain the most water.

In 2009, it was a very wet year for the Devils Lake Basin. Aerial images from 2009 show that many of the depressions and potholes in the region were holding water. LIDAR detects the elevation of the earth's surface and it does not penetrate water. Therefore, an analysis of 2009 LIDAR would have provided inaccurate results for the volume of storage in the Devils Lake Basin. However, both the subjects of wetland restoration and upper basin storage are outside the scope of the drain permit appeal process.

**Factor #5 - The project's impacts on ponds, sloughs, or lakes having recognized fish and wildlife values.**

The March 22, 2012 memorandum (pg. 7) stated:

As stated above under Factor #1, operation of the EEO (and WEO) is limited by a downstream water quality constraint for the protection of aquatic life, which requires the concentration of sulfate to be less than 750 mg/l.

The intake structure for the EEO has a minimum operating level of elevation 1446.3 feet. Draining the lake down to this elevation will protect the Devils Lake fishery. During the permit reconsideration hearing for Drain Permit #2986, the original drain permit for the WEO, Terry Steinwand, Chief of the ND Game and Fish Department's Fisheries Division (currently Director of NDGF), agreed that

constraining the operation of the WEO to those periods when the level of Devils Lake is above elevation 1445.0 feet would adequately limit the WEO's potential to significantly impact the fishery.

The transfer of biota will be minimized by the rock filter structure. The April 2003 Integrated Planning Report and Environmental Impact Statement, prepared by the U.S. Army Corps of Engineers (USACE) for the federal Pelican Lake outlet project (Pelican Lake outlet report), states that a sand filter would, to the extent practical, prevent fish, plants, invertebrates, algae, and other organisms from leaving Devils Lake via the outlet (p. 6-81). Also during the permit reconsideration hearing for Drain Permit #2986, Steinwand testified that he was involved in a joint study with US and Canadian scientists and water quality experts to determine the impacts of a diversion of water from Devils Lake to the Red River. The study results concluded that there is a minimal risk of aquatic biota transfer through an outlet. A June 26, 2003 recommendation memorandum for Drain Permit #2986, written by Julie Prescott (SWC engineer), references another biota transfer study. This study, which was conducted by Peterson Environmental Consulting, Inc and funded by the USACE, determined that, based on all available information, it is highly unlikely that downstream habitats would be substantially affected as a result of biota transfer caused by a Devils Lake outlet, due to the high degree of similarity between the species already present in the Devils Lake and Hudson Bay basins. A 1997 investigation report conducted by the ND Geological Survey states that water from Devils and Stump Lakes has overflowed into the Sheyenne River at least six times in the last 10,000 years BP (before present). At least two major flood events occurred between the years 7,800 to 8,700 BP. Two more flood events happened over the course of the next 400 years (7,800 to 7,400 BP). At least one additional fluvial event occurred prior to 1,100 year BP. Therefore, interbasin biological exchange by means of a natural overflow, though not frequent in occurrence, has already taken place.

The Petitioners' comments regarding Factor #5 are on pages 34 through 41 (including page 41(a)) of their written testimony. The Petitioners cited statements from the Pelican Lake EIS, a 2008 mussel survey by Dr. Andre Delorme (Professor at Valley City State University), and provided additional information from the *Physical Habitat, Water Quality and Riverine Biological Assemblages of Selected Reaches on the Sheyenne River, North Dakota, 2010* (written by USGS) to illustrate the fish and wildlife values of the Sheyenne River.

They also provided 13 citations from the Pelican Lake EIS that were identified to be potential effects to fish and wildlife populations and habitat. As stated above under Factor #2, the Pelican Lake EIS is for a different project and it is not necessary that every adverse effect be eliminated before the State Engineer issues a drain permit. N.D. Admin. Code § 89-02-01-09.2 requires that the State Engineer consider adverse effects in the decision process, which is not the same as requiring the elimination of every adverse effect.

Engelhardt testified that a 2007 baseline biological study (*Devils Lake Outlet Biological Assessment*) was conducted by High Plains Consortium, Inc., before operation of the WEO (field

work completed during 2004 and 2005). In 2010, the USGS performed a second biological study titled *Physical Habitat, Water Quality and Riverine Biological Assemblages of Selected Reaches on the Sheyenne River, North Dakota, 2010* (written by USGS). In the 2010 study, physical-habitat, water-quality, and biological data were collected from 12 selected reaches at four locations on the Sheyenne River. The 2010 study states (pg. 16):

Data collected during the 2010 study were compared to data collected in 2004 and 2005 by the High Plains Consortium, Inc. (2007). Overall comparisons of the data from the 2010 study with the previous 2004 and 2005 studies did not indicate major differences in water-quality and ecological conditions.

And at pg. 17:

The mean sulfate concentrations satisfied the State of North Dakota water-quality requirements of less than 750 mg/L in the upper Sheyenne River and less than 450 mg/L in the lower Sheyenne River.

Also at pg. 17:

This data collection is part of an on-going evaluation of the water-quality and ecological conditions of the Sheyenne River by the State.

During the hearing, Engelhardt explained that the SWC would continue to do these studies as advised by the North Dakota State Health Department, North Dakota Game and Fish Department, and the Devils Lake Outlets Advisory Committee.

The Petitioners also comment that the rock filter could still allow the transfer of biota from Devils Lake to the rest of the Red River Basin and that no monitoring study is mentioned in the mitigation plan. In his testimony, Engelhardt said that the rock filter is comprised of a 3½-foot thick 3- to 4-inch diameter rock bottom layer, a 1-foot thick ½- to 3-inch diameter rock middle layer, and a 1-foot thick 3/8-inch diameter pea gravel top layer. Water flows from bottom to top within the filter, and it is the same media as used in the WEO filter. He also testified that Manitoba agreed to the WEO filter and that the size of the rock was specified by a biologist from Manitoba.

The 2011 *Devils Lake – Red River Basin Fish Parasite and Pathogen Project* report conducted by Aquatic Ecosystem Committee for the International Joint Commission and International Red River Board concluded (pg. 7):

The design of the existing filter was intended to reduce the risk of adult fish being released to the downstream environment. It was not designed to reduce risks associated with transfer of smaller organisms such as larval fish, bacteria, and free-living life stages of parasites. There are multiple pathways of transport of the bacteria and parasites found in Devils Lake to other locations in the Hudson Bay Basin.



According to the above citation, it is correct that the filter may allow some microscopic organisms to pass through. However, in the March 22, 2012 memorandum, it was stated that the filter would minimize, not completely eliminate, the transfer of biota. It should also be noted that the same study (pg. 41) also says:

The parasites and bacteria found in Devils Lake were generally widely distributed throughout much of North America.

Also pg. 41:

[A]ll experts concluded that the risk to downstream fish and fisheries was low from the parasites and pathogens found in Devils Lake, and the potential for causing disease was negligible.

Engelhardt also presented correspondence from Terry Steinwand, Director, ND Game and Fish Department, pertaining to the immediate effect of East Devils Lake water on fish obtained from the Tolna Dam reservoir. A June 18, 2012 memo from Steinwand describes a brief experiment performed on fish taken from the Tolna Dam reservoir and placed in East Devils Lake water for 24 hours. At the conclusion of the experiment, the fish looked healthy, displayed no signs of stress, and were active and alert. It is stated that the purpose of the experiment was to determine adverse effects to adult fish due to a rapid change in TDS/conductivity levels. In the accompanying June 21, 2012 letter to Engelhardt, Steinwand says:

Also, as I've stated before, we recognize there will be impacts to the upper Sheyenne River associated with increased flows due to outlet operations. Flow regimes will change which, in turn, may change the fish assemblage currently inhabiting the river. However, I also recognize the tremendous capacity for systems to adapt and return to prior state once the perturbation has been removed. I believe this will be the situation for the upper Sheyenne River when Devils Lake outlet flows are reduced or eliminated.

The Petitioners also presented more concerns and citations from the Pelican Lake EIS, which was developed for a different project, dealing with the affect of water quality on fish and wildlife values. The State Engineer is not directed to consider water quality impacts in this regulatory decision. The North Dakota State Health Department sets the water quality standards for the state, and the SWC, as operator of the outlets, is responsible for complying with those standards.

The evidence shows that while there may be effects on fish and wildlife due to operation of the outlets, there have been no major changes in ecological conditions of the Sheyenne River thus far. Also, the evidence indicates that the biota was already similar between the Devils Lake Basin and the rest of the Red River Basin before any of the outlets operated. The Devils Lake Outlets Advisory Committee has directed and the SWC has committed as indicated in testimony to continue monitoring the ecological conditions of the Sheyenne River.

#### **Factor #6 - The project's impact on agricultural lands.**

The March 22, 2012 memorandum (pg. 8) stated:

The removal of water upstream of the EEO will benefit agricultural lands in the Devils Lake Basin. Impacts to agricultural land downstream of the EEO will be addressed with the Devils Lake Outlet Mitigation Plan. Agricultural land within the project alignment will go back to normal use. Landowners will be paid for current and future crop damages as agreed to in easements.

The Petitioners' comments regarding Factor #6 are on pages 42 and 43 of their written testimony. The Petitioners rely primarily upon citations from the Pelican Lake EIS, which was prepared for a different project, to show that there may be impacts to agricultural lands downstream, including flooding, diminished property values, soil salinization, and deteriorated water quality for irrigation. As stated above under Factor #5, the State Engineer is not authorized to determine effects due to water quality. The SWC mitigation plan provides for mitigation of adverse impacts that may be caused by the outlets to agricultural land due to hydrologic effects.

**Factor #7 - Whether easements are required.**

The March 22, 2012 memorandum (pg. 6) addressed this factor:

Easements have been acquired by the SWC for the land on which the EEO is located. As previously stated under Factor #1, the SWC plans to address flooding caused by the outlets through their mitigation plan. Flowage easements may become a part of the mitigation plan, but initially will be handled through the application process in the mitigation plan because of the unknown base flow quantities in the Sheyenne River and unknown combined outlet quantities.

The Petitioners' comments regarding Factor #7 are on pages 43 and 44 of their written testimony. In their testimony, the Petitioners note that the Pelican Lake EIS, which was prepared for a different project, mentions the need for easements in some places along the upper Sheyenne River. They also reference N.D.C.C. § 61-32-03, which provides that a permit may not be issued until easements are obtained if it is determined that the project will flood or adversely affect lands of downstream landowners.

In this case, the issue of downstream flowage easements is being handled by the SWC's mitigation plan. It is clear from the preponderance of evidence that the SWC is not disregarding potential adverse effects that may occur to downstream landowners due to the operation of the outlets. It should also be noted that the State Engineer is not authorized to require the SWC to mitigate for adverse effects that may occur due to water quality.

Again, as concluded under the "Absence of Investigations" section of this memorandum, N.D.C.C. § 61-32-03 and its requirements pertaining to easements prior to issuing the permit do not apply to the SWC.

**Factor #8 – Other factors unique to the project.**

The March 22, 2012 memorandum (pg. 6) stated:

Currently, Devils Lake is about 4.5 feet from an uncontrolled release of water at the Tolna Coulee Control Structure, which is located at the lake's natural outlet location. Any quantity of water that can be discharged from any of the outlets helps to reduce the risk of an uncontrolled overflow at the natural outlet. The maximum design discharge of the Tolna Coulee Control Structure is 3,000 cfs. Water released by the Tolna Coulee Control Structure would have the poorest water quality in the lake. When one considers the risk between controlled outlets and an uncontrolled natural overflow, it is apparent that an uncontrolled overflow of the lake would be more devastating to downstream landowners and cities.

The Petitioners' comments regarding Factor #8 are on pages 44 through 46 of their written testimony. They comment that there is great concern about adding Devils Lake water to the Sheyenne River due to water quality and the increased cost of water treatment for those utilizing the Sheyenne River as a water source. They also quote N.D. Admin. Code § 33-16-02.1-02, which pertains to standards of quality of waters of the state. They further state that all additional water treatment expenditures are made necessary by the increased level of sulfate in the Sheyenne River due to operation of the outlets.

As previously stated, the State Engineer is not authorized to evaluate water quality when reviewing an application to drain. The North Dakota State Health Department sets the water quality standards, and the SWC must comply with those standards when operating the outlets. In 2009, the North Dakota State Health Department implemented emergency rulemaking and changed the sulfate standard from 450 mg/L to 750 mg/L for the Sheyenne River from its headwaters to 0.1 mile downstream of Baldhill Dam. A limit of 750 mg/L was determined to be protective of aquatic life. The North Dakota State Health Department's website provides information supporting this decision. The sulfate standard for the rest of the Sheyenne River is 450 mg/L.

Engelhardt's testimony explained that the SWC is working with the North Dakota State Health Department to monitor sulfate levels, and he provided a handout outlining the sampling locations, frequency, and constituents tested. The handout states that samples are collected from a total of 20 locations to monitor water quality in Devils Lake, the Sheyenne River, Tolna Coulee, and the Red River. Samples are collected and analyzed for sulfate and other constituents twice per week, weekly, or biweekly, depending on location. Along with monitoring water quality, the handout explains that flow rate, stage, and conductivity (or parts thereof) are monitored by over 15 USGS stream gages along the Sheyenne River, Tolna Coulee, and the Red River. Seven of the sampling locations are coupled with real-time, continuous, specific conductance monitors operated by the USGS.

In reconsideration of the eight factors identified in N.D. Admin. Code § 89-02-01-09.2, the Petitioners' testimony does not provide evidence that material facts or conclusions are erroneous nor does it show how the Petitioners are factually aggrieved by the State Engineer's decision as

required in the drain permit appeal process under N.D. Admin. Code § 89-02-01-09.6 that have not been addressed by the mitigation plan.

## **VII. Testimony from Non-Petitioners**

In addition to the Petitioners and Engelhardt, three other individuals provided oral testimony. Although these testimonies were heard, they are not considered relevant to the appeals hearing because these individuals did not appeal the issuance of the permit. Allan Mosback testified that his family farm in the Devil Lake Basin has lost approximately 40% of his land to flooding and he is in support of the EEO. Dick Johnson, Mayor of Devils Lake, stated that the EEO is important to the Devils Lake region's economic viability and sustainability. He added that the City of Devils Lake has declared another emergency and Governor Dalrymple has approved the declaration. The final person to testify was Joe Belford, Ramsey County Commissioner and Chairman of the Nine-County Group. Belford testified that flooding has taken a considerable amount of prime agricultural land in the Devils Lake Basin and has affected roads and the Amtrak. He commented on the flooding problems in the City of Minnewaukan where the school is being moved and 27 homes have already been relocated, with more to go. He stated that the water needs to keep moving and believes that the way the outlets are to be operated will be beneficial to everyone.

## **Conclusions and Recommendations**

In conclusion, the record indicates that the eight factors provided in N.D. Admin. Code § 89-02-01-09.2 have been evaluated. Any adverse hydrologic effect that may occur to downstream property from operation of the outlets will be addressed by the SWC's mitigation plan. It is recommended that a condition be added to the permit that requires the SWC to continue monitoring erosion of the Sheyenne River, in addition to monitoring erosion of the Tolna Coulee downstream of the EEO's discharge point for the duration of project operation. The Devils Lake Outlets Advisory Committee has directed and the SWC has committed as indicated in testimony to continue monitoring the ecological conditions of the Sheyenne River. It is also recommended to broaden the scope of condition #2 to allow the State Engineer to require modification of the project for any reason, not solely to protect downstream property and fish and wildlife resources.

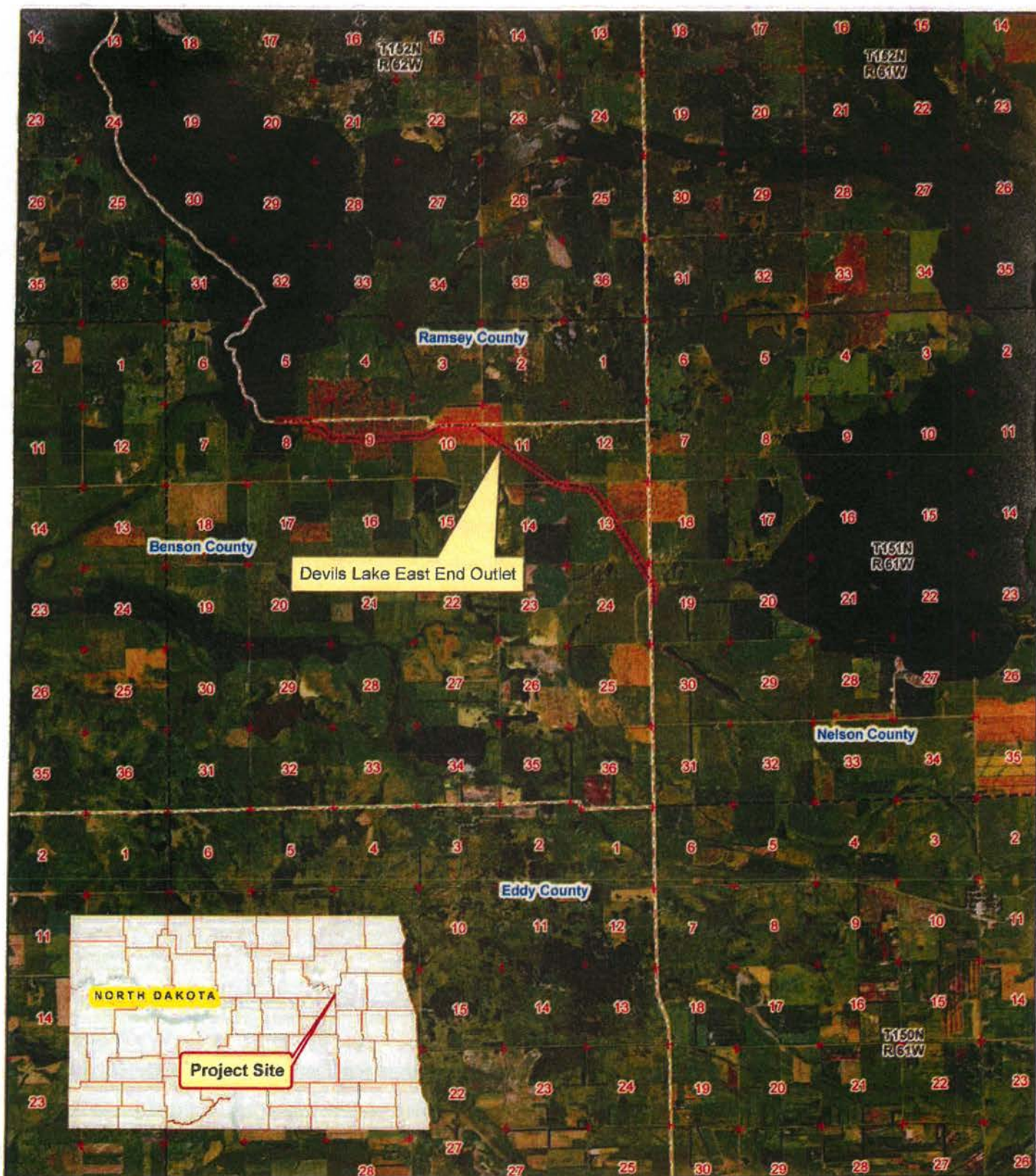
The requirements stated in N.D.C.C. § 61-32-03, that the Petitioners claim have been violated, has an exemption for construction of drain projects that are under the supervision of a state agency, as determined by the State Engineer.

Upon reconsideration of the factors identified in N.D. Admin. Code § 89-02-01-09.2 and the testimony presented at the hearing, it is recommended that the State Engineer find that the material facts and conclusions are not erroneous. It is further recommended that the State Engineer affirm the issuance of Drain Permit #3863 with changes to condition #2 and the addition of condition #5. The following conditions are recommended:

1. This permit authorizes the permit holder to drain water from Devils Lake at a rate not to exceed 350 cfs. Expansion of the project's capacity would require a new permit.

2. The State Engineer reserves the right to order modifications to the project if the State Engineer determines that modifications are required ~~to protect downstream property or fish and wildlife resources.~~
3. Drainage is only authorized when the level of Devils Lake is above 1445.0 feet (NGVD 29).
4. The Permittee shall implement the Devils Lake Outlet Mitigation Plan for the duration of the project. The State Engineer must approve any modification of the Devils Lake Outlet Mitigation Plan.
5. The Permittee shall continue monitoring erosion on the Sheyenne River and include monitoring of erosion in the Tolna Coulee from the discharge point of the Devils Lake East End Outlet downstream to the confluence with the Sheyenne River for the duration of the project.





ND State Water Commission Ramsey, Benson, & Nelson Co.  
Permit No. 3863



**Devils Lake East End Outlet – State Engineer’s Hearing**  
**Drain Permit #3863**  
**List of Exhibits**  
June 22, 2012

**Ad Hoc Downstream Group and People To Save The Sheyenne Exhibits**

<u>No.</u>	<u>Description</u>
1.	Copy of the Petitioner’s written testimony for the June 22, 2012, hearing
2.	<i>The Sheyenne: A River in Peril</i> booklet, produced by People to Save the Sheyenne (Winter 2010)
3.	Aerial imagery of the Devils Lake Basin (2011)
4.	<i>Sheyenne Valley: The Voices Downstream</i> DVD (June 22, 2012)

**State Water Commission Exhibits**

<u>No.</u>	<u>Description</u>
1.	<i>Devils Lake – Red River Basin Fish Parasite and Pathogen Project</i> , prepared by Aquatic Ecosystem Committee for the International Red River Board and International Joint Commission (2011)
2.	2012 Devils Lake Water Quality Monitoring Fact Sheet
3.	<i>Devils Lake Outlet Biological Assessment</i> , prepared by High Plains Consortium, Inc., for the North Dakota State Water Commission (2007)
4.	<i>Physical Habitat, Water Quality and Riverine Biological Assemblages of Selected Reaches on the Sheyenne River, North Dakota, 2010</i> , United States Geological Survey (2010)
5.	June 21, 2012 letter and accompanying June 18, 2012 memo from Terry Steinwand, Director, North Dakota Game and Fish Department
6.	Copy of the State Water Commission’s presentation for the hearing

Hearing on Permit 3863 East Devils Lake Outlet( final)

People to Save the Sheyenne

Ad Hoc Downstream Group

June 22, 2012

Bismarck, North Dakota

**I. Citizens of Valley City and Barnes County consider the Sheyenne River their major natural asset and are aggrieved by the actions of agencies of the State of North Dakota**

1.1 Introduction

1.2 Exhibit 1: DVD testimony of citizens who value the Sheyenne River

Exhibit 2: People To Save the Sheyenne and Ad Hoc Downstream Group  
material with maps and water quality information

**II. Comments on application process**

2.1. The declaration of the state of the emergency

2.2 Conflicts of interest in the State Water Commission's drainage permit process

2.3 Permitting after construction

2.4 Absence of Investigations affirmatively demonstrating that the quantity of water drained by the project will not flood or adversely affect downstream lands

**III. Analysis of eight factors:** Under NDAC § 89-02-01-09.2, "The state engineer, for applications of statewide or interdistrict significance, and the board for all applications to drain, shall consider the following factors":

3.1 The volume of water proposed to be drained and the impact of the flow or quantity of this water upon the watercourse into which the water will be drained.



- 3.2 Adverse effects that may occur to the lands of lower proprietors. This factor is limited to the project's hydraulic effects such as erosion, duration of floods, impact of sustained flows, and impact on the operation of downstream control devices.
- 3.3 The engineering design and other physical aspects of the drain
- 3.4 The project's impact on flooding problems in the project watershed.
- 3.5 The project's impact on ponds, sloughs, streams or lakes having recognized fish and wildlife values
- 3.6 The project's impact on agricultural lands
- 3.7 Whether easements are required
- 3.8 Other factors unique to the project

### **III. Closing**

### **IV. Exhibits**

Submitted by: Richard Betting, Secretary  
Save the Sheyenne  
PO Box 252  
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## **Introduction:**

“Water levels of Devils Lake have fluctuated between about 1459 feet above mean sea level, which is the approximate spill elevation into the Sheyenne River; to about 1398 feet above mean sea level, the lake being completely dry. Research indicates that lake levels have reached those extremes several times since glaciation. ...

The original land surveys in 1887 indicated a lake level of about 1441 msl in 1830. That level was based on the comparison of tree ring samples taken from existing stands of timber above and below elevation 1441. The maximum recorded level of 1438 msl was reached in 1867 and a minimum recorded level of 1400.9 msl in 1940. .. Generally, lake levels rose from 1940 to 1956, declined from 1956 to 1968, rose and peaked at 1428 msl in 1983 and 1987, then declined into 1993 to its most recent low level of 1422.62 msl”(ND State Water Commission Website)

Devils Lake, rising off and on since 1940, due in large part to upper basin wetland drainage, was declared an emergency on October 23, 1997, and the Devils Lake Emergency Management Committee was formed to deal with high water around Devils Lake. The group declared an "EMERGENCY TODAY" and, they proclaimed, it "started in 1993." Since 1997 several other emergency declarations have been made. July 7, 2009, the Devils Lake City Commission declared an emergency. July 13, 2009, the ND State Water Commission requested the Department of Health to declare the Devils Lake situation an emergency. July 15, 2009, the Department of Health asked Governor Hoeven to approve an emergency. Governor Hoeven approved the emergency request the same day. The Devils Lake City Commission declared another emergency September 23, 2010.

These and other declarations fail to indicate what constitutes an emergency.

While at one time the City of Devils Lake may have been threatened by high water, since the Corps of Engineers has built permanent dikes and levees around the city to protect it to an elevation of 1466 feet above mean sea level--almost thirteen feet above the present elevation of the lake--there can hardly be an emergency on that issue. Farmland flooding in the lake bed around Devils Lake can hardly be called an emergency because rising water can be predicted and in fact, is to be expected, since runoff from the upper basin into the lower Devils Lake basin will result in higher levels of water in the lower basin. The threat of a 15,000 catastrophic overflow at the Tolna Coulee inundating the Sheyenne Valley has been addressed by the Army Corps of Engineer Tolna Coulee Project.

If the label "emergency" or "crisis" is used now about Devils Lake high water, it will also be appropriately applied to the Sheyenne River and its residents in the future as outlets are operated and increased flooding occurs there.

The term Continuing Permanent Emergency Situation [or variations thereof] is not a legitimate North Dakota Century Code term and cannot be used to justify adding Devils Lake and Stump Lake water to the river in order to reduce the elevation of those lakes. Those actions should rightly be called drainage activities and should require appropriate permits.

There is no denying that farmers around Devils Lake have suffered economic and social damage; we would not wish anyone to lose their home or way of making a living. We hope that state or federal government will address compensation. The state's present approach of using multiple outlets to the Sheyenne River as a way of reclaiming 60,000 acres of farm land, keeping a naturally fluctuating lake stable at 1446 feet above msl and improving Devils Lake water quality, however, shifts the entire burden downstream, changing the hydrology of eastern ND, western Minnesota and Manitoba permanently.

In this complex situation, there are many stakeholders: farmers in the upper basin, around Devils Lake and in the Sheyenne River Valley, townspeople around the Lake, Sheyenne River and the metro Fargo area, outdoors enthusiasts using Devils Lake and the Sheyenne, the biological integrity of all the waterways downstream from Devils Lake, and last but not least, both state and federal taxpayers. Adherence to the laws of North Dakota in an honest and diligent fashion is necessarily the basis on which to formulate an equitable, efficient, and environmentally sound solution.

## REFERENCE

North Dakota State Water Commission:

<http://www.swc.state.nd.us/4dlink9/4dcgi/GetSubCategoryRecord/Devils%20Lake%20Flooding/Background>

## **2.1 The declaration of the state of emergency**

On April 29, 2011, North Dakota Governor Jack Dalrymple signed Executive Order 2011-01 declaring a state of emergency “to provide flood protection to the Devil Lake Basin. . .” (Dalrymple, 2011b). The Governor’s action was based on the authority conferred by North Dakota Century Code § 37-17-05(6)(a) to issue executive orders “to minimize or avert the adverse effects of a disaster or emergency,” and it suspended Chapters 54-44.4, 55-44.7, and 48-01.2 of the Century Code:

“ . . . as it applies to the State Water Commission and State Engineer (together ‘Commission’) in order to design and build an East Devils Lake outlet.” (Dalrymple, 2011 b).

NDCC Chapter 54-44.4 deals with State Purchasing Practices (e.g., sound procurement practices and principles, full competition with fair and equal opportunity for all qualified persons to sell to the state), Chapter 55-44.7 deals with Architect. Engineer, and Land Surveying Services, and Chapter 48-01.2 deals with Public Improvement Bids and Contracts.

Executive Order 2011-01 does not suspend NDCC § 61-32-03, Permit to drain waters required, which specifies that:

“Any person, before draining a pond, slough, lake, or sheetwater, or any series thereof, which has a watershed area comprising eighty acres [32.37 hectares] or more, shall first secure a permit to do so. The permit application must be submitted to the state engineer. The state engineer shall refer the application to the water resource district or districts within which is found a majority of the watershed or drainage area of the pond, slough, lake or sheetwater for consideration and approval. A permit may not be granted until an investigation discloses that the quantity of water which will be drained from the pond, slough, lake or sheetwater, or any series thereof, will not flood or adversely affect downstream lands. If the investigation shows that the proposed drainage will flood or adversely affect lands of downstream landowners, the water resource board may not issue a permit until flowage easements are obtained. The flowage easements must be filed for record in the office of the recorder of the county or counties in which the lands are situated. An owner of land proposing to drain shall undertake and agree to pay the expenses incurred in making the required investigation. This section does not apply to the construction or maintenance of any existing or prospective drain constructed under the supervision of a state or federal agency, as determined by the state engineer.”

The State Engineer determined that the requirements of NDCC § 61-32-03 regarding a permit to drain applies to the Devils Lake East End Outlet (Dalrymple, 2011c).

Executive Order 2011-01 also does not suspend North Dakota Administrative Code § 89-02-01-09.12, Time within which to begin construction of drain, which specifies that:

“The recipient of a permit to drain under this chapter shall commence actual construction within two years of the date the decision granting the permit is final. The two-year period does not begin until any appeal of the state engineer’s decision or board’s decision is completed, nor does it run during the course of any other legal action brought to challenge the state engineer’s decision or board’s decision or halt to modify the project.

There are no provisions under NDCC Chapter 61-32 or NDAC Chapter 89-02-01 that allow for the commencement of actual construction of the Devils Lake East End Outlet before the permit required under NDCC § 61-32-03 has been finalized and any appeal or other legal action challenging the permit has been resolved.

Executive Order 2011-1 signed by Governor Dalrymple on April 29, 2011, declaring a state of emergency for the design and construction of the Devils Lake East End Outlet is based on nine “Whereas” premises, each one of which is incomplete and/or misleading. For example:

- *“Whereas, I, Jack Dalrymple, Governor of the State of North Dakota, declared a state of emergency by Executive Order 2011-1 to provide flood protection to the Devils Lake Basin including the Spirit Lake Nation and the counties of Benson, Nelson, Ramsey and Towner. . .”*

Facts: Inflows to Devils Lake to Devils Lake averaged 317,000 acre-feet per year from 1993 to 1997 (U. S. Army Corps of Engineers, 2003) and reached approximately 600,000 acre-feet per year in 2009 and 2011. The Devils Lake East End Outlet will have the capacity to pump a maximum of 350 cubic feet per second (cfs) of water from Devils Lake to the Sheyenne River (Ackerman, 2012). If operated at full capacity for seven months, the outlet would remove 145,000 acre-feet of water per year from Devils Lake, but if operated for a more conservative five months, the outlet would remove only 104,000 acre-feet per year (Ackerman, 2012). Combined with the 250 cfs West Bay Outlet, the two outlets operating for five months would remove a total of 178,500 acre-feet of water per year from Devils Lake. Clearly, the Devils Lake East End Outlet will not “provide flood protection to the Devils Lake Basin.”

- *“Whereas, Devils Lake, since it began its historic record-breaking ascent in 1993, has risen over 30 feet in the past 18 years. . .”*

Facts: Devils Lake was at elevation 1429 feet in 1987 (U. S. Army Corps of Engineers, 1992), but after several years of severe drought, the elevation had dropped to 1427.7 feet in 1990 and to 1423.3 feet by 1992, prompting the North Dakota State Water Commission, the State Engineer, the North Dakota Game and Fish Department, the North Dakota Department of Health and the Garrison Diversion Conservancy District to develop a plan to deliver 200 cfs of water from the Missouri River to Devils Lake using features of the U. S. Bureau of Reclamation’s partially completed Garrison Diversion Unit to raise the level of the lake to 1432.7 feet (North Dakota State Water Commission, et al., 1990). Consequently, Devils Lake has actually risen 25 feet in the 25 years from 1987 to 2012, and its highest level of 1454.39 feet reached on June 1, 2011, was 21.69 feet above the level proposed by the State in 1990 and only 6.87 feet above the level to which the lake could be lowered by the Devils Lake East End Outlet (Ackerman, 2012).

The 378,000 acres of wetlands that have been drained in the Devils Lake Basin (U. S. Fish and Wildlife Service, 1997) had the capacity, prior to being drained, to store an average of 7.1 inches of water in a 2-year run-off event and 18.5 inches of water in a 100-year run-off event (Ludden et al., 1983). Even in years of moderate precipitation, prior to drainage, those 378,000 acres of wetlands had the capacity to store and evaporate over 224,000 acre-feet of water per year, or 86% of the average 260,000 acre-feet of inflows to Devils Lake in the 19 years from 1993 to 2011. In years of high precipitation, prior to drainage, those 378,000 acres of wetlands had the capacity to store up to 567,000 acre-feet of water, or 97% of the record 585,000 acre-feet of inflows to Devils Lake in 2009 and the similar record inflow in 2011. Consequently, much of the “historic record-breaking ascent” of Devils Lake since 1993 has been the direct result of wetland drainage in the Devils Lake Basin approved or condoned by the North Dakota State Water Commission and the North Dakota State Engineer.

- *“Whereas, the unprecedented rise of Devils Lake has pushed floodwaters well beyond Ramsey and Benson Counties and the Spirit Lake Nation to the north into Towner County and east into Nelson County. . .”*

Facts: As discussed and documented above, the Devils Lake East End Outlet does not address the cause of the unprecedented rise of Devils Lake and it will do little to prevent the continued rise of the lake if high levels of precipitation should resume.

- *“Whereas, floodwaters from the lake have spilled into Stump Lake, which has risen 43.5 feet and is now part of Devils Lake. . .”*

Facts: As discussed and documented above, the Devils Lake East End Outlet does not address the cause of the rise of Devils Lake and Stump Lake, and because the minimum operating level of the intake structure is at elevation 1446.3 feet (Ackerman, 2012), the Devils Lake East End Outlet will not prevent Devils Lake from overflowing to Stump Lake at elevation 1446.5 feet when inflows to Devils Lake exceed the discharge capacity of the outlet.

- *Whereas, Devils Lake has exceeded an elevation of 1453 feet, and continues to set new record levels daily. . .*

Facts: When Governor Dalrymple signed Executive Order 2011-1 on April 29, 2011, Devils Lake was at elevation 1453.54 feet and the lake rose another 10.2 inches to elevation 1454.39 feet by July 1, 2011. However, the elevation of Devils Lake had dropped to 1453.97 feet by August 29, 2011, when the Governor submitted Application to Drain No. 3863 to the State Engineer and it had dropped back to 1453.53 feet by April 10, 2012, when the State Engineer approved the permit.

- *“Whereas, the latest Outlook issued by the National Weather Service calls for better than a 50 percent chance of both a record inflow from the 3,810 square-mile basin and for the lake to reach 1454.8 feet this summer. . .”*

Facts: Devils Lake reached elevation 1454.39 feet on July 1, 2011, which was 4.6 feet below the 1459 feet natural overflow elevation of Devils Lake before the State Water Commission and the State Engineer allowed the City of Devils Lake to excavate a foot from the high point of the Tolna Coulee in 2009, and it had dropped below 1454 feet when the Governor submitted Application to Drain No. 3863 to the State Engineer on August 29, 2011. However, even with the record 600,000 acre-feet inflows in 2011, the lake still was 3.6 feet below the new overflow elevation of 1458 feet.

- *“Whereas, Stump Lake will overtop at an elevation of 1458 feet and spill into the Tolna Coulee and eventually into the Sheyenne River. . .”*

Facts: Three-and-a-half months before Governor Dalrymple signed Executive Order 2011-1 on April 29, 2011, declaring a state of emergency to provide flood protection to the Devils Lake Basin by the design and construction of the Devils Lake East End Outlet, he had sent a letter to the U. S. Army Corps of Engineers requesting Advance Measures assistance with:

“... the design and construction of a control structure on the Tolna Coulee divide ... capable of being lowered to allow additional controlled discharge down to an elevation of 1446 feet msl. . .” (Dalrymple, 2011a)

The Corps’ March 22, 2011, *Project Information Report, Advance Measures, Tolna Coulee, Nelson County, North Dakota*, which was prepared in response to the Governor’s request and was released more than a month before the Governor signed Executive Order 2011-1 declaring a state of emergency at Devils Lake, concluded that:

“The data. . . shows that there is a very low probability [ $<1\%$ ] of the lake reaching elevation 1458 feet in 2011.” (U. S. Army Corps of Engineers, 2011a)

On July 14, 2011, two-and-a-half months before the Governor submitted Application to Drain No. 3863 for the Devils Lake East End Outlet to the State Engineer, the Corps released its *Draft Environmental Assessment, Tolna Coulee Advance Measures, Nelson County, North Dakota*. The Draft Environmental Assessment explained that:

“Based on the current elevation-storage curve, it would take approximately 903,322 acre-feet of water to ‘fill’ Devils Lake from 1454 msl to 1458 msl. This is larger than any of the single-year inflow events that have been recorded and there is about a 9% chance that this could occur in 2012. Assuming the lake starts at elevation 1454 next year, an inflow event similar in magnitude to 2009 (about 600,000 acre-feet) would result in the lake rising to 1456.8 feet msl.” (U. S. Army Corps of Engineers, 2011b)

In fact, the Draft Environmental Assessment concluded that another record 600,000 acre-feet of inflows, in addition to the 903,322 acre-feet of inflows required to raise Devils Lake to its overflow elevation of 1458 feet—a total of 1,500,000 acre-feet—would be necessary to raise Devils Lake to elevation 1459.7 feet before the overflow through the Tolna Coulee would reach 684 cfs. (U. S. Army Corps of Engineers, 2011 b). The Corps estimated the chance of Devils Lake reaching 1458 feet by the spring of 2012 at 9% (U. S. Army Corps of Engineers, 2011b). Coupled with the 1% chance of a 600,000 acre-feet 100-year inflow event also occurring at that time, the combined chance of both events occurring in the spring of 2012 was less than one in a thousand.



- *“Whereas, an uncontrolled release from Stump Lake could spill 15,000 cubic feet per second into the Sheyenne River, which is two to three times the amount of water that flooded Valley City in the spring of 2009. . .”*

Facts: In its July 14, 2011, Draft Environmental Assessment for the Tolna Coulee Project, the U. S. Army Corps of Engineers estimated that 900,000 acre-feet of inflows would be required to raise Devils Lake to its 1458 feet overflow elevation in the spring of 2012, and another record 600,000 acre-feet of inflows—a total of 1,500,000 acre-feet of water—would be necessary to raise the lake to elevation 1459.7 feet where the flows from Stump Lake to the Sheyenne River would reach 684 cfs (U. S. Army Corps of Engineers, 2011b). The Corps’ Standard Project Flood for the Devils Lake Basin, which represents the most severe combination of meteorological and hydrologic conditions reasonably characteristic of the region, is 1,152,000 acre-feet (U. S. Army Corps of Engineers, 1999). Consequently, the 1,500,000 acre-feet of inflows that would have been required to raise Devils Lake to the point where the overflow from Stump Lake in the spring of 2012 would have reached 684 cfs was 348,000 acre-feet (24%) greater than the Standard Project Flood for the Devils Lake Basin.

The claim that “an uncontrolled release from Stump Lake could spill 15,000 cubic feet per second into the Sheyenne River” is based on a scenario that has virtually no relevance to reality. First, it is based on the hypothetical premise that a 1,440,000 acre-feet, ½ Probable Maximum Flood would occur when Devils Lake already had reached its 1458 feet overflow elevation (U. S. Army Corps of Engineers, 2011b), and the Corps even states that:

“It is unlikely that a ½ PMF would actually occur. . .” (U. S. Army Corps of Engineers, 2011b)

and:

“ . . . even though the ½ PMF was used as the design event for the [Tolna Coulee Project] structure, it is of limited value for an effects evaluation due to the unlikelihood of its occurrence—it is more than two times as large as any single year recorded inflow.”

(U. S. Army Corps of Engineers, 2011b)

In fact, the Corps had earlier calculated that:

“The probability of the Lake filling to elevation 1459 and then experiencing a [1,152,000 acre-feet] SPF [Standard Project Flood] is about 1 chance in 70,000.” (U. S. Army Corps of Engineers, 1999)

Of course, the chance of a 1,440,000 acre-feet ½ Probable Maximum Flood occurring with Devils Lake already at its overflow elevation is even lower.

Second, the hypothetical 15,000 cfs “uncontrolled release” figure is based on the premise that a ½ Probable Maximum Flood would result in the Tolna Coulee eroding eight feet, down to elevation 1450 feet (U. S. Army Corps of Engineers, 2011a) and releasing an additional 1,516,680 acre-feet of water stored between elevation 1458 and 1450 feet. However, there is no scientific evidence in the geologic record that the Tolna Coulee eroded in any of the at least six (and up to ten) documented overflow events that have occurred over the last 10,000 years (Murphy et al., 1997).

In fact, the geological evidence demonstrates that, instead of eroding during previous overflow events, the elevation of the Tolna Coulee actually was raised from 1441 feet to 1459 feet as a result of the deposition of sediments—including snail and clam shells—in the Coulee as water flowed slowly from Stump Lake to the Sheyenne River (Bluemle, 1991; Murphy et al., 1997). The Corps admits that:

“Under the Probable Future, there would be no overflow or erosion of the coulee. . .”  
(U. S. Army Corps of Engineers, 2011b)

Finally, the Corps stated explicitly in its July 14, 2011, Draft Environmental Assessment for the Tolna Coulee Project—which was released a month and a half before Governor Dallymple submitted Application to Drain No. 3863 for the Devils Lake East End Outlet to the State Engineer—that:

“The need for the proposed project is based on the potential catastrophic downstream damage in the event of an uncontrolled overflow. . .

The purpose of the project is to prevent a catastrophic release of flow through the Tolna Coulee in the event of an overflow of Stump Lake, while allowing Devils Lake water levels to fall to the level they would have without the project. Allowing Devils Lake water levels to fall would avoid the potential adverse effects of maintaining high water levels on Devils Lake after erosion of the coulee. Because an overflow could occur as early as the spring of

2012, the proposed project must be completed prior to that time.” (U. S. Army Corps of Engineers, 2011b)

In fact, the Corps’ Tolna Coulee Project, which was designed to limit the flows to a maximum of 3,000 cfs through the Tolna Coulee in the event of an overflow (U. S. Army Corps of Engineers, 2011b), was finished on May 24, 2012 (Ladwig, 2012), a month before the State Water Commission’s Devils Lake East End Outlet that was the subject of the Governor’s April 29, 2011, emergency declaration was to become operational (Bonham, 2012). Consequently, Governor Dalrymple knew when he signed his April 29, 2011, state of emergency declaration for the East End Outlet that even the hypothetical possibility of a 15,000 cfs uncontrolled discharge from Devils Lake would be eliminated before the outlet was completed.

It is clear from even this brief review of the facts that the premises upon which Governor Dalrymple’s April 29, 2011, declaration of a state of emergency for the Devils Lake East End Outlet was based were misleading and that the claim that a state of emergency existed at Devils Lake was contrived for the purpose of promoting the State Water Commission’s agenda for draining water into the Sheyenne River rather than addressing the causes of the high water at Devils Lake. The Governor, the State Water Commission and the State Engineer have access to that and other factual information unequivocally demonstrating that an emergency did not exist at Devils Lake in April 2011 and that an emergency does not exist now. Nevertheless, Governor Dalrymple told the May 23, 2012, joint meeting of the Devils Lake Outlet Management Advisory Committee and Devils Lake Outlet Advisory Committee that:

“Where we are heading is that in June, at some point, we will declare an emergency situation and we will begin to operate our outlets and begin to move water to the Sheyenne. . .”  
(Luessen, 2012)

## **2.2 Conflicts of interest in the State Water Commission’s permitting process**

In the Notice of Decision on Application to Drain No. 3863, Todd Sando states:

“... Application to Drain No. 3863 submitted by the North Dakota State Water Commission for the Devils Lake East End Outlet, was approved by the State Engineer on April 10, 2012. This project will pump water at a maximum rate of 350 cubic feet per second through a 5.2-mile pipeline from East Devils Lake to Tolna Coulee, a tributary of the Sheyenne River.” (Sando, 2012)

Before addressing the technical merits of the State Engineer's decision on Application to Drain No. 3863, it is instructive to review the process through which the application was submitted to and approved by the State Engineer.

North Dakota Century Code (NDCC) § 61-02-04 specifies that:

"The state water commission shall consist of the governor, commissioner of agriculture, and seven other members to be appointed by the governor. . . The seven appointive members of the commission must be appointed for a term of six years each with their terms of office so arranged that two terms and not more than three terms expire on the first day of July of each odd-numbered year. . ."

Under NDCC § 61-02-05:

"The governor shall be the chairman of the commission. . ."

NDCC § 61-03-01 then provides that:

"A state engineer shall be appointed by the state water commission. . . The state engineer shall serve as secretary and chief engineer of the commission. Such engineer shall hold the office for such term as the commission shall determine. . . "

Consequently, (1) the governor is the statutory chairman of the State Water Commission, (2) during the course of each four-year term, the governor appoints either four or five members of the nine-member Commission, (3) the governor and the seven gubernatorial appointees constitute an eight-to-one majority on the Commission, (3) the Commission appoints the State Engineer and the State Engineer is an employee of the Commission, and (4) the State Engineer serves at the pleasure of the Commission. This means that the governor is able to exercise a dominant influence over the decisions of the State Water Commission and the actions of the State Engineer.

NDCC § 61-32-03 specifies that:

"Any person, before draining a pond, slough, or lake, or sheetwater, or any series thereof, which has a watershed comprising eighty acres [32.37 hectares] or more shall first secure a permit to do so. The permit application must be submitted to the state engineer. The state engineer shall refer the application to the water resource districts within which is found a majority of the watershed or drainage area of the pond, slough, or lake, or sheetwater for consideration and approval, but the state engineer may require that applications proposing drainage of statewide or interdistrict significance be returned to the state engineer for final approval. . ."

In the case of Application to Drain No. 3863:

1. On August 31, 2011, North Dakota Governor and State Water Commission Chairman Jack Dalrymple submitted an Application to Drain for the Devils Lake East End Outlet prepared by the Office of the State Engineer, to State Engineer Todd Sando.
2. On October 17, 2011, North Dakota State Engineer Todd Sando referred the application to the Ramsey County Water Resource District and the Towner County Water Resource District.
3. On October 26, 2011, the Ramsey County Water Resource District announced that, "The Ramsey and Towner County Water Resource Districts will be having a public hearing on an Application to Drain." (DeMarais, 2011)
4. The Notice of Hearing on Application to Drain Water from Devils Lake to the Sheyenne River stated that:

". . . the State Water Commission, 900 East Boulevard Avenue, Bismarck, ND 58505, has filed Application to Drain No. 3863 for a permit to drain water from Devils Lake to the Tolna Coulee, a tributary of the Sheyenne River, to address flooding impacts of the rising level of Devils Lake. The project is called the Devils Lake East End Outlet and is located northwest of Tolna, ND in Ramsey, Benson, and Nelson Counties. . . The application has been determined by the State Engineer to be of statewide and interdistrict significance." (DeMarais, 2011)
5. On December 1, 2011, the Ramsey County and Towner County Water Resource Districts held a public hearing on Application to Drain No.3863 in Devils Lake, North Dakota (Oleson, 2011).
6. On December 29, 2011, the Chairman of the Ramsey County Water Resource District sent a letter to North Dakota State Water Commission Water Resource Engineer Laura Ackerman posing several questions regarding the State Water Commission's comments on the eight factors that water resource boards are required under NDAC § 89-02-01-09.2 to consider in evaluating applications to drain and that the State Engineer is required to consider for applications of statewide or interdistrict significance. (Berg, 2011)

7. On January 6, 2012, North Dakota State Water Commission Construction Section Chief Jonathan Kelsch sent a letter to Ramsey County Water Resource District Chairman Paul Becker providing answers and responses to the questions raised in the District's December 19, 2011, letter. (Kelsch, 2012)
8. On January 10, 2012, the Ramsey County Water Resource District approved the State Water Commission's Application No. 3863 to Drain Water from Devils Lake through the East End Outlet. (Berg, 2012) In addressing the eight factors that the District is required to consider under NDAC § 89-02-01-09.2, the *Determination of Ramsey County Water Resource District on Drain Permit Application No 3863* cites no independent investigation of the factors but simply quotes the information provided the State Water Commission virtually verbatim, and notes that:

“The approval of the State Water Commission's Application No. 3863 by the RCWRD is not a permit to drain, until the State Engineer has also approved the application.” (Emphasis in original) (Berg, 2012)
9. On March 22, 2012, Office of State Engineer Water Resource Engineer Laura Ackerman sent an *Interoffice Memorandum to State Engineer Todd Sando, Water Development Division Director Bruce Engelhardt and Regulatory Section Chief John Paczkowski, Subject: Application to Drain No. 3863 – Devils Lake East End Outlet*. (Ackerman, 2012) recommending that Application to Drain No. 3863 be approved by the State Engineer subject to certain conditions. (Ackerman, 2012)
10. On April 10, 2012, State Engineer Todd Sando Approved Application to Drain No. 3863 for the Devils Lake East End Outlet. (Sando, 2012)

Therefore, in summary:

- The Office of the State Engineer prepared Application to Drain No. 3863 for the Governor and Chairman of the State Water Commission, which appoints and establishes the term of employment of the State Engineer.
- The Governor and Chairman of the State Water Commission submitted the application to the State Engineer whose actions are controlled by the State Water Commission.

- The State Engineer determined that the application was of statewide and interdistrict significance and referred it to the Ramsey County and Towner County Water Resource Districts.
- The Office of the State Engineer provided information to the Ramsey County Water Resource District on the eight factors the District was required to consider in evaluation the application.
- The Ramsey County and Towner County Water Resource Districts cite no independent investigation of the eight factors they were required to consider but relied primarily on the information provided by the Office of the State Engineer.
- The Ramsey County and Towner County Water Resource Districts approved the application on January 10, 2012, citing only the information provided by the Office of the State Engineer, and returned the application to the State Engineer. (Berg, 2012)
- The State Engineer approved the application, which had been prepared by his office and which had been submitted by the Governor and Chairman of the State Water Commission, which controls his actions and his employment, on April 10, 2012. (Sando, 2012).

These conflicts of interest incorporated in the State Water Commission's incestuous drainage permit application review process already erase any pretext or presumption of independent scientific objectivity, and a review of the timing and circumstances of the submission and approval of Application to Drain No. 3863 further confirms the lack of integrity of the process and the lack of credibility of the resulting decisions.

### **2.3 Permitting after construction**

The North Dakota Administrative Code specifies, under **89-02-01-03. Permit required**, that:

“1. A permit is required before any person may construct a drain for the purpose of draining waters from a pond, slough, lake, or sheetwater, or

any series thereof, having a watershed of eighty acres [32.37 hectares]

or more.”

and

“3. A permit is required before any person may drain, cause to be drained, or attempt to drain any meandered lake.”

Devils Lake is a meandered lake with a watershed of 2,440,960 acres. Therefore, according to North Dakota Administrative Code § 89-02-01-03, a permit is required before a drain may be constructed for the purpose of draining water from the lake. It is instructive to consider the sequence of events under which Application to Drain No. 3863 for the Devils Lake East End Outlet was submitted, considered and approved:

- On April 29, 2011, Governor Dalrymple declared a state of emergency to provide flood protection to the Devil’s Lake Basin by the design and construction of an East Devils Lake outlet, and in order to do so he suspended Chapters 54-44.4, 55-44.7, and 48-01.2 of the North Dakota Century Code (Dalrymple, 2011a)
- On June 4, 2011, the Associated Press reported that:

“The North Dakota Water Commission this week took a step toward construction of an east-end outlet on flooded Devils Lake.

Gov. Jack Dalrymple says the group opened bids from companies who want to supply the pipe. Staff and engineering consultants will review the bids and make recommendations to the commission. Dalrymple calls it ‘an important step forward.’” (Associated Press, 2011)

- On June 6, 2011, *The Devils Lake Journal* reported that:

“Dalrymple announced last week that bids have been opened for the procurement of pipe that will be used for the construction of the east Devils Lake outlet. The Commission has been working with Bartlett & West/AECOM to design the outlet and expects to begin construction this summer.” (Anonymous, 2011)

- On June 22, 2011, *The Grand Forks Herald* reported that:



“The water commission this week also approved moving forward with the building of a 350-cfs outlet – a 5.5-mile, 96-inch underground pipeline – from East Devils Lake to the Tolna Coulee and building a control structure on the coulee. These projects are expected to be completed by spring of 2012.” (Bonham, 2011)

- Construction of the Devils Lake East End Outlet began in August 2011 and site preparation for the inlet was completed by the end of the month.
- On August 29, 2011, Governor and State Water Commission Chairman Jack Dalrymple submitted an Application to Drain for the Devils Lake East End Outlet to State Engineer Todd Sando. (Dalrymple, 2011b)
- The State Water Engineer determined that the East End Outlet involved drainage of statewide and interdistrict significance and on October 17, 2011, the Application to Drain No. 3863 for the Devils Lake East End Outlet was referred to the Ramsey County and Towner County Water Resource Districts for consideration.
- Under North Dakota Administrative Code (NDAC) § 89-02-01-09.1, the water resource district or districts to which an application involving drainage of statewide or interdistrict significance is/are referred may either approve or deny the application.
- On October 26, 2011, the Ramsey County and Towner County Water Resource Districts announced that a public hearing on Application to Drain No. 3863 had been scheduled for December 1, 2011, at the Ramsey County Court House. (DeMarais, 2011)
- Patrick Fridgen of the North Dakota State Water Commission reported in the October 2011 issue of *North Dakota Water* that:

“The State of North Dakota’s efforts to move forward with a second outlet from the Devils Lake System are well under way. The North Dakota State Water Commission’s outlet project manager, Jon Kelsch, says, ‘all of the 96-inch steel pipe has been delivered and about one third of the 96-inch concrete pipe has also arrived on site.’ The remainder of the pipe will continue to be delivered, with all of it scheduled to be on site by late fall.”

- On November 30, 2011, *The Devils Lake Daily Journal* reported that:

“Representatives of the ND Water Commission will be in Devils Lake Thursday morning at 9 a.m. for a hearing on the East Devils Lake Outlet in the Historical Room in the basement of the Ramsey County Courthouse.

**The purpose is to gather public input and comments on the project although it already is under way and its initial phase nearly completed. . .**

**Although the initial plan was to have all of the pipeline laid by Thanksgiving, now the new date they will be finished is Thursday, Dec. 1 – the day of the hearing.”** (Emphasis added) (Oleson, 2011)

- The transcript of the Ramsey County Water Resource District’s December 1, 2011 hearing on Application to Drain No. 3863 includes the following exchange between Benson County Water Resource Board Chairman John Beckstrand, and State Water Commission Construction Section Chief Jonathan Kelsch, the project engineer for the Devils Lake East End Outlet speaking for the State Water Commission :

Mr. Beckstrand: “What I—mean, you’ve done all this work now. I live in that area and have watched it. What’s the purpose of the hearing when you’ve got, already got it in? Why wasn’t the hearing before you even began?”

Mr. Kelsch: “I asked that same question, because—the answer is, we don’t need the drain permit to build it, we need to actually move water. And the question is, well why would you build something if you’re not going to get a drain permit? It’s basically the fast—the urgency of this project, and to fast-track it, we needed to get it going, otherwise we would not be pumping water next year. And that was what we were directed to do, is to get the thing built and get water pumped in, in—you know, by June of two—2012, and the only way to do this was to start construction.” (Transcript of December 1, 2011, hearing on Application to Drain No. 3863, p. 22)

- On January 10, 2012, the Ramsey County Water Resource District approved Application to Drain No. 3863 for the Devils Lake East End Outlet, but noted that:

“The approval of the State Water Commission’s Application No. 3863 by the RCWRD is not a permit to drain, until the State Engineer has also approved the application.” (Emphasis in original) (Berg, 2012)

- On March 22, 2012, Office of the State Engineer Water Resource Engineer Laura Ackerman submitted an Inerooffice memorandum to State Engineer Todd Sando, Water Development Division Director Bruce Engelhardt and Regulatory Section Chief John Paczkowski in which she analyzed Application to Drain No. 3863 and recommended that it be approved by the State Engineer. (Ackerman, 2012)
- On April 10, 2012, North Dakota State Engineer Todd Sando approved Application to Drain No. 3863 for the Devils Lake East End Outlet. (Sando, 2012)
- North Dakota Administrative Code § 89-02-01-09.12 states explicitly that:

**“The recipient of a permit to drain under this chapter shall commence actual construction within two years of the date the decision granting the permit is final.”** (Emphasis added)

- There are no provisions under North Dakota Administrative Code Chapter 89-02-01 that provide for the commencement of construction of a drainage project before the decision granting the permit is final.
- Governor Jack Dalrymple’s April 29, 2011, Executive Order declaring a state of emergency for the design and construction of the Devils Lake East End Outlet did not suspend the requirements of North Dakota Administrative Code § 89-02-01-09.12 requiring that the permit to drain be issued before construction of the outlet began.

Consequently, in the case of the permit for the Devils Lake East End Outlet, (1) the State Water Commission opened bids for the pipe for the project three months before the governor submitted an application to the State Engineer on August 31, 2011, for a permit for the project, (2) the State Water Commission approved initiation of construction of the project more than two months before the governor submitted an application to the State Engineer on August 31, 2011, for a

permit for the project, (3) construction of the project was initiated a month before the governor submitted an application to the State Engineer on August 31, 2011 for a permit for the project, (4) the project already was “well under way” by the time the State Engineer referred Application to Drain No. 3863 to the Ramsey County and Towner County Water Resource Districts on October 17, 2011, (5) the project was “nearly completed” at the time the Ramsey County and Towner County Water Resource Districts held the December 1, 2011, hearing on Application to Drain No. 3863 required under NDAC § 89-02-01-09.1, (6) the project was “nearly completed” more than a month before the Ramsey County and Towner County Water Resource Districts approved the application on January 10, 2012, and (7) the project was “nearly completed” over four months before the State Engineer approved the application on April 10, 2012.

The initiation of construction of the Devils Lake East End Outlet by the State Water Commission a month before an application for a permit for the project was submitted to the State Engineer, two and a half months before the State Engineer referred the application to the Ramsey County and Towner County Water Resource Districts, five months before the Ramsey County and Towner County Resource Districts approved the application and eight months before the State Engineer approved the permit, constitutes a violation of North Dakota State law by the Governor, the State Water Commission, the State Engineer, the Director of the Water Development Division and the Chief of the Regulatory Section. Because the submission and approval of Application to Drain No. 3863 violated the clear and specific requirements of North Dakota Administrative Code Chapter 89-02-01, the permit is void and construction of the project violates North Dakota State law.

The disregard of the law demonstrated by the Governor, the State Engineer and the State Water Commission in the submission and review of Application to Drain No. 3863 and the unequivocal proof that they had made the decision to build the Devils Lake East End Outlet before the permit application process was initiated makes a travesty of the application and review process specified in North Dakota Administrative Code Chapter 89-02-0. It erases any pretext of independent objectivity in the review of the application, and it eliminates any presumption of credibility of the results of that review

2.4 Absence of Investigations affirmatively demonstrating that the quantity of water drained by the project will not flood or adversely affect downstream lands

NDCC § 61-32-03 provides that:

“Any person, before draining a pond, slough, or lake, or sheetwater, or any series thereof, which has a watershed area comprising eighty acres [32.37 hectares] or more, shall first secure a permit to do so. The permit application must be submitted to the state engineer. The state engineer shall refer the application to the water resource districts within which is found a majority of the watershed or drainage area of the pond, slough, lake, or sheetwater for consideration and approval, but the state engineer may require that applications proposing drainage of statewide or interdistrict significance be returned to the state engineer for final approval. **A permit may not be granted until an investigation discloses that the quantity of water which will be drained from the pond, slough, lake, or sheetwater, or any series thereof, will not flood or adversely affect downstream lands.** If the investigation shows that the proposed drainage will flood or adversely affect lands of downstream landowners, **the water resource board may not issue a permit until flowage easements are obtained.** The flowage easements must be filed for record in the office of the recorder of the county or counties in which the lands are situated. **An owner of land proposing to drain shall undertake and agree to pay the expenses incurred in making the required investigation.** . .” (Emphasis added)

It is important to note that, in the case of the application cited in the above notice, NDCC § 61-32-03 imposes an affirmative fiduciary duty on the State Water Commission to “undertake and agree to pay the expenses incurred in making the required investigation” to determine whether the quantity of water which will be drained from Devils Lake as a result of increasing the capacity of the State Water Commission’s East and West Devils Lake outlet to 600 cfs will “flood or adversely affect downstream lands.”

It also is important to note that it is not sufficient under NDCC § 61-32-03 for the issuance of the permit to be based upon an absence of evidence that increasing the capacity of the outlets to 600 cfs will flood or adversely affect downstream lands, or upon a finding that the flooding or adverse effects on downstream lands are not significant or that they are necessary or justified in order to address flooding at Devils Lake. Nor are there any provisions under the statute for issuing a permit based upon speculative and unsubstantiated claims that flooding or other adverse effects can be avoided. NDCC § 61-32-03 explicitly requires that, before the permit may be granted, an investigation must have been conducted and the results of that investigation must affirmatively demonstrate that increasing the capacity of the State Water Commission’s Devils Lake outlets from to 600 cfs “will not flood or adversely affect downstream lands.”

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### **3.1 The volume of water proposed to be drained and the impact of the flow or quantity of this water upon the watercourse into which the water will be drained**

- How much volume is involved?

The East Devils Lake outlet's maximum capacity is 350 cfs. The stated plan, in the March 22, 2012 Inter-office memorandum from Laura Ackerman, however, is to operate this simultaneously with the West Devils Lake outlet for a combined flow of 600 cfs as soon as risk of major flood on the Sheyenne is over and until freeze-up, a period of about 6 months. As of the approval date of the permit, a third state outlet, the West Stump Lake Outlet is also being planned with a flow of 0-668, depending on Lake level. The Tolna Coulee Control structure has a maximum capacity of 3000 cfs uncontrolled flow. The maximum flow for the Sheyenne has not yet been declared by the state engineer. Therefore, an additional 600 to 4268 cfs of Devils Lake water into the Sheyenne River for 6 months of the year and 3000 cfs all year is a possibility. While the following discussion is for effects of the minimum volume of 600 cfs for 6 months annually, the same issues, of course apply for the higher flows and common sense, in the absence of real data or modeling, dictates that the damages will be increasingly severe as the flow volume rises.

Flows in the Sheyenne River flows averaged 87,380 acre-feet per year below Baldhill Dam from 1950-1992 (U. S. Bureau of Reclamation, 1997). Increasing the annual flows of the Sheyenne River by 214,000 acre-feet (600 cfs for 6 months) as a result of operation of the West Bay and East Devils Lake outlet outlets would increase the average annual flow at Baldhill Dam by 245 percent. The monthly average flow in the Sheyenne River for the last 62 years for June through November ranges from 79 cfs to 255 cfs, so the addition of 600 cfs from Devils' Lake is very significant. The capacity of Lake Ashtabula is approximately 75,000 acre-feet. Therefore, operation of the Devils Lake outlets at 600 cfs would replace the volume of Lake Ashtabula with lower quality Devils Lake water every 2.9 months.

- What will this volume do?

An inundation analysis was done for the upper Sheyenne River showing that 5,849 acres would be flooded with 600 cfs flow; "the inundation analysis was not done for the Sheyenne River below Baldhill Dam, and a hydraulic model for this section is not available." (Jonathan Kelsch, NDSWC, Construction Chief, Jan 6 letter to Paul Becker). The Army Corps of Engineers, however, cites a HEC RAS model from 2005 using 2000 LIDAR data for the Sheyenne between Lisbon and Valley City. (*Sheyenne River, Valley City, North Dakota*

*Reconnaissance Study, December 2011* ).The state engineer , in assessing the impact of Devils Lake volume on the Sheyenne River, could have updated the HEC RAS profile in order assess the effects of adding this large volume of water to the Sheyenne River. Current HEC RAS modeling would give information on baseline conditions, chronic flood damage caused by the extra 600 cfs, as well as contribution of Devil's Lake water to sudden summer floods occurring in the setting of an artificially high river and a heavy rain. If combined with existing soil studies, an identification of areas most prone to erosion could be accomplished.

In short, the applicant State Water Commission has cited no significant investigations of the impacts of an additional 214,000 acre-feet water annually from the Devils Lake outlet on the Sheyenne River and Lake Ashtabula.

Response to March 22 Inter-office memo items:

- The memo refers to County Road 4 and a crossing in Tolna being directly affected. According to the *Upper Sheyenne River Channel Capacity Study* of June 1997, the channel capacity of the Sheyenne River above Lake Ashtabula (upper Sheyenne) is 600 cfs. Highways 45(Griggs County) and 20(Eddy County) would flood at 600 cfs . Highway 20 would not be affected by the East Devils Lake Outlet, but a fully functional West Bay Devil's Lake outlet would add 250 cfs at this site. The river at Highway 1 (Nelson County) has a channel capacity of 700 cfs. The 67 year median flow for the Sheyenne in Griggs County is about 100 cfs in early summer. No data were presented to address these previously identified areas of concern.
- The memo indicates that all damages will be managed through the *Mitigation Plan, June 2011*. This 5 page plan basically states that all damages will be addressed on a case-by case basis as they occur. There are no proactive provisions to allow downstream people to protect themselves from flooding or erosion. Indeed, there cannot be any such provisions since no investigations have been carried to determine the potential damages. There are no provisions for monitoring of environmental damages. The burden will be on downstream landowners to prove that damages are the direct result of the operation of the Devils Lake East End Out let and would not have occurred in the absence of the operation of the outlet. This would require the collection of hydrologic and channel morphology data costing tens of thousands of dollars to document baseline conditions prior to operation of the outlet, and additional tens of thousands of dollars to collect hydrologic and channel morphology data on a continuing basis in order to document damages resulting from operation of the outlet. In 2003, the Army Corps of Engineer budgeted approximately 45 million dollars for mitigation for a damages from a 300 cfs

Pelican Lake Outlet with relatively good water quality and limited by a total 600 cfs flow in the Sheyenne; they also admitted that the environmental damages might not be avoidable and close monitoring was necessary (*Final Devils lake North Dakota Integrated Planning Report and Environmental Impact Statement* (FEIS) . The State's present plan leaves landowners and residents along the Sheyenne River at the mercy of the State Engineer for determination and reimbursement of any damages.

- The March 22 inter-office memo alludes to the Devils Lake Advisory Committee which will have some influence over the operation of all of the Devils Lake outlets. As the members of the recently enlarged, better balanced committee were chosen by the Governor, however, these members may not reflect the sentiments of their communities. Furthermore, Griggs County, the county just south of the East Devil's Lake outlet has no representation nor does rural Cass County which experienced historic overland flooding from the Sheyenne River in 2011.

**3.2 Adverse effects that may occur to the lands of lower proprietors. This factor is limited to the project's hydraulic effects such as erosion, duration of floods, impact of sustained flows, and impact on the operation of downstream control**

The U. S. Army Corps of Engineers' 2003 *Final Devils Lake, North Dakota, Integrated Planning Report and Environmental Impact Statement* ( FEIS) (U. S. Army Corps of Engineers, 2003) is the only comprehensive document enumerating benefits, alternatives, mitigation and cost benefit analysis done to date on the Devils Lake issue. The State Engineer has cited no investigations that would refute the adverse effects to the lands of lower proprietors identified by the U. S. Army Corps of Engineers that would result from the flow of 600 cfs of water from the West Bay and Devils Lake East End Outlets.

The Corps of Engineers' April 2003 *Final Devils Lake, North Dakota, Integrated Planning Report and Environmental Impact Statement* (FEIS) evaluated the impacts of a 300 cfs Pelican Lake outlet constrained by a 300 mg/l sulfate limit and 600 cfs total flows in the Sheyenne River. It is instructive to consider the hydrologic effects identified by the Corps for the 300 cfs Pelican Lake outlet, while recognizing that the effects of the West Bay and Devils Lake East End Outlets which will operate at 600 cfs constrained only by" major downstream flooding in the Sheyenne or Red Rivers" (letter from Jonathon Kelsch, to Paul Becker) would be even more severe:

- "An outlet to the Sheyenne River . . . could also reduce the aesthetics of the riparian zone by **accelerating erosion-deposition processes along the river.** ."Vegetation in the riparian corridor may be affected by changes in groundwater elevation and quality,

changes in frequency and duration of flooding, and induced erosion associated with increased flows. Based on the assumption of a 1/4 mile area of influence, groundwater changes could potentially affect about 112,000 acres of riparian lands along the Sheyenne River." (FEIS p. 6-47, 6-64) (Emphasis added))

- “. . . an outlet could **exacerbate flooding along the Sheyenne River** with consequent damage to transportation infrastructure, including roads and bridges.” (Emphasis added) (FEIS p. 6.49)
- “**Exacerbated flooding in the Sheyenne River** could damage agricultural property, including lands, equipment and structures.” (Emphasis added) (FEIS p. 6-49)
- “An outlet from Devils Lake could diminish property values along the Sheyenne River. The potential adverse impact to property values would be based on damage in the riparian zone, **exacerbated flood risks**, and reduced water quality for agriculture or recreation.” (Emphasis added) (FEIS p. 6-50)
- The Sheyenne River flow rate of the Pelican Lake Outlet project would be "no more than 600 cfs." "This flow rate would result in out-of-bank flooding on approximately 3,500 acres. Flowage easements would need to be purchased on lands that were flooded at 600 cfs and are not part of mitigation features. This would result in a requirement to purchase flowage easements on 1,880 acres." (FEIS 5-140)
- “**Extended high flows** from Baldhill Dam may result in problems related to the ability to drain the fish ponds at Baldhill Dam and Valley City National Fish Hatcheries. Flows around 700 to 800 cfs will prevent the ponds from being drained.” (Emphasis added) (FEIS p. 6-52)
- “Operation of the Pelican Lake outlet would result in **substantial change in the flow regime of the Sheyenne River**. Discharges of up to 300 cfs over a major portion of the summer would result in **a five- to tenfold increase in summer/fall flows** along the Sheyenne River. Increased flows throughout the summer would result in **changes in river stage on the Sheyenne and Red Rivers**.” (Emphasis added) (FEIS p. 6-56)
- “With the increase in flow, some **change is expected in width and depth, and erosion would probably increase**.” "Studies have indicated that the operation of an outlet could result in changes in channel width, and in meander length and amplitude. Depending on location, channel widths on the Sheyenne River could change by as much as 3 feet on

reaches below Baldhill Dam, as much as 9 feet at some locations above Baldhill Dam." (FEIS 6-58,6-59)

- **"Effects in Lake Ashtabula include reduced retention time, increased nutrient loading, increased movement of fish out of the lake, and increased storage of water. The outlet would reduce storage time in Lake Ashtabula and increase turnover rate."** (Emphasis added) (FEIS p. 6-60)
- **"The operation of the outlet would affect river stages, groundwater levels near the river, erosion, availability of aquatic habitat, river access, and river crossings."** (FEIS p. 6-60)
- "Upstream of Lake Ashtabula with the 1/4 mile buffer along the river, which has been identified as the area of potential groundwater influence, there are about 370 landowners with an average land ownership of about 126 acres each. Downstream of Baldhill Dam there are about 850 landowners, each with about 75 acres within the 1/4 mile buffer along the river." The increased flow in the river would have an effect on trail crossings and access across the river.(FEIS 6-65)
- "There are 14 low-head, weir type dams on the Sheyenne River between the insertion point of the outlet and the Red River." The hazard these dams pose from the "roller effect" "would likely be worse due to the outlet" but could be mitigated with the use of rock fill. (FEIS 5-140).

Of particular concern to Valley City is the issue of increased river stage during the summer. Even without an additional 600 cfs from Devils Lake, Valley City has experienced major mid-summer floods from sudden heavy rains. In this situation there is little or no warning to prepare, unlike the usual spring flood season. The State's mitigation plan states: "The West Devils Lake, East Devils Lake, and Stump Lake gravity flow outlets will be managed with the objective of balancing the discharge of water with protection for those downstream. As a result, when the Sheyenne River is flooding or significant precipitation events are forecasted, outlet discharges will be adjusted to mitigate the risk of compounding high flow problems." Water from Devils Lake takes 7 days to reach Valley City (*Corps of Engineers Sheyenne River, Valley City, Reconnaissance Study, p 11*), so the plan of turning off the pumps when the Sheyenne is high and rain is anticipated is untenable. The communities on the Sheyenne and Red have been placed at higher risks of summer flood because of the higher river stage.

- The higher volume affects Red River population centers as well: The 600 cfs will contribute to erosion on the earthen West Fargo Sheyenne Diversion, which was crucial in the flood fights of 2009 and 2011. In January 25, 2010 in response to the proposed increase of flow on the West Devils Lake Outlet from 100 to 250 cfs, a letter from the Cass County Water Resource board stated:

“The accelerated erosion rate of erosion to the Sheyenne Diversion would jeopardize the communities of Fargo, West Fargo and Horace including substantial public infrastructure, and thousands of homes, businesses and ag properties in Cass County. While the Cass County Joint Water Resource district recognizes and supports the need for flood protection and relief in Devils Lake, the Cass County joint board expects your Boards, the state engineer and the State water commission to address adverse impacts to the Sheyenne Diversion in the course of the parties’ application process, as required under North Dakota law.”

The Army Corps of Engineer 2 billion dollar Fargo Moorhead diversion does not include the Devil’s Lake basin in its design.

Because the state engineer has cited no investigations quantifying and qualifying the hydrologic effects such as erosion and flooding to the lands of lower proprietors resulting from increasing the capacity of the Devils Lake outlets to 600 cfs, and because the preponderance of the evidence demonstrates that increasing the capacity of the State Water Commission’s Devils Lake outlets to 600 cfs will flood and adversely affect downstream lands, the permit should not be issued until the required investigations have been conducted and flowage easements have been obtained from all of the affected downstream landowners.

### **3.3 The engineering design and other physical aspects of the drain.**

People to Save the Sheyenne and the Ad Hoc Downstream Group engaged Lidstone and Associates to review the Army Corps of Engineers' Tolna Coulee Control structure operating plan and technical data. The 120 foot wide by 12 foot deep control structure is part of an 800 foot armored sill. It should not operate unless and until the Lake exceeds the natural spill level of 1458 and the high points of the Tolna Coulee erode. At that point, stop logs are pulled out of the control structure to parallel natural erosion, although there is no geologic evidence that natural erosion of Tolna Coulee ever occurred in previous overflows over the past 10,000 years. In any event, the Corps avoided doing a full environmental impact statement for this project because

“natural” erosion was being mimicked. i.e. the high points of the Tolna Coulee would still determine when and how much overflow would occur, except that the control structure would limit maximum flow to 3000 cfs. The Devils Lake East End Outlet, however, enters the Tolna Coulee 1000-1200 feet downstream from the downstream end of the high point of the Tolna Coulee. Lidstone’s findings were:

“The physical proximity of the East End Outlet to the topographic high points and the erodibility of the material in the coulee increase the threat of headcutting through the high points during more moderate flows through the Tolna Coulee. This would not constitute “natural erosion” but rather man-made erosion with the potential to significantly impact the operation of the USACE’s grade control structure.”

The Devils Lake East End Outlet therefore has the potential for necessitating the operation of the control structure which, when fully operational, has a capacity of 3000 cfs without any control. This would effectively lower than natural overflow point of the Lake to 1446 feet above msl forever and double the Sheyenne River watershed at Valley City from 4000 to 8000 square miles. Since there are no provisions for repositioning the stop logs at the time of spring floods, the Sheyenne and Red River would receive Devils Lake basin water even during severe spring floods. There are neither plans to monitor head-cutting at the East Devils Lake outlet terminus nor measures to prevent head-cutting.

### **3.4 The project’s impact on flooding problems in the project watershed.**

It is agreed that operation of the West Bay and Devils Lake East Devils Lake Outlets at maximum capacity for a season( between 5 and 7 months) would remove approximately 1 foot of water at elevation 1454; It is also worth noting that for this latitude and climate, the pan evaporation rate is 2 .5 feet annually.

Factor #4 in the March 22, 2012 Inter-office memorandum states:

“Besides having a beneficial effect on the Devils Lake Basin, the EEO (East End Outlet) would also benefit the downstream landowners along the Sheyenne and Red Rivers by decreasing the likelihood of water spilling uncontrollably at the natural outlet location where the water quality is the poorest in comparison to the rest of the lake. The SWC's objective is to remove water from Devils Lake while maintaining river levels and water quality at acceptable levels downstream. The EEO is part of the 'three-pronged approach'. When combined with upper basin storage and infrastructure protection, it is considered an important part of the solution to the flooding problems experienced in the Devil's Lake Basin”.

- The statement about protecting the downstream landowners against the poorest quality water at time of natural overflow is disingenuous in view of the State's plan to construct the West Stump Lake Gravity Outlet, which would release exactly that poorest quality water prior to natural overflow. Furthermore, the chance of natural overflow at level 1458 is vanishingly low, considering that in February, 2012, the chance of reaching 1454.3 feet, the highest level recorded, was 20%; but as of May 21, 2012 the chance of reaching 1453.3 feet by September 30, 2012 was 10%. (NWS Long Range Probabilistic outlook). About 1.1 million acre feet of water would be required to fill the lake from an elevation of 1453 feet to its overflow elevation of 1458 feet, while the highest recorded inflow to date is about 600,000 acre feet.
- In regard to the magnitude of a natural spill at the Tolna Coulee, U. S. Army Corps of Engineers modeling indicates that if the lake were full at 1458 feet above msl and 600,000 acre feet inflow occurred, the highest inflow recorded to date, the overflow would be about 600 cfs. The overflow would occur in August and taper to about 300 cfs by December of that year (*Project Information Report Advance Measures Tolna Coulee, Nelson County, ND, March 2011 page 7*). This is hardly a catastrophe for the downstream communities. If the lake were full, a 600,000 acre-feet inflow were to occur AND erosion occurred (either natural or manmade), the Tolna Coulee control structure would flow at 3000 cfs from fall to spring, coinciding with the spring flooding season. Therefore it is imperative that the Devils Lake East End Outlet not contribute to erosion at the Tolna Coulee. (see discussion above under factor #3). The oft –quoted but highly unlikely 15,000 cfs catastrophe is prevented by the Corps sill structure.
- The March 22, 2012 Inter-office memorandum states, “the EEO is part of a 3 pronged approach including upper basin storage.” The State has virtually no acreage in its Extended Storage Acreage Plan (ESAP) and does not actively promote wetland restoration, even though water retention was recommended in the Devil's *Lake Federal*



*Interagency Task Force Report* and the FEIS. Indeed the state will not even authorize the analysis of 2009 LIDAR data of the Devils Lake Basin that would quantify and identify areas that could retain the most water. Instead, an inadequate and outdated West Consultants study from 2000 and reliance on local sentiment that “all the wetlands are full” are cited to justify failure to explore this measure fully. Both satellite and aerial views show well drained fields in the Upper Devils Lake Basin.(Exhibit 3) Refusal to acknowledge and address this manmade component of the high water level at Devils Lake places an unfair burden not only on downstream communities on the Sheyenne and Red River Valleys, but also the farmers around Devil’s Lake.

### **3.5 The project’s impact on ponds, sloughs, streams or lakes having recognized fish and wildlife values.**

The *U. S. Army Corps of Engineers’ Final Devils Lake, North Dakota, Integrated Planning Report and Environmental Impact Statement* (FEIS) describes the fish and wildlife values of the Sheyenne River as follows:

“The Sheyenne River provides spawning habitat and nursery areas for forage fish, as well as a migrational avenue for sport fish, including channel catfish, northern pike, walleye, bass, and crappie especially during high water conditions. The Sheyenne River contains more species of fish than any other North Dakota tributary, with over 50 identified. The river itself and a number of small reservoirs created by low-head dams provide fishing opportunities for nearby residents. About 3 percent of the angler-days of fishing in North Dakota are spent on the Sheyenne River. Commonly harvested fish include northern pike, walleye, channel catfish, black bullhead, yellow perch, and bluegill. Baldhill Creek, a tributary to the Sheyenne River, contains the only known population of trout perch in North Dakota. There are nine species of freshwater mussels inhabiting the Sheyenne River.

The riparian areas along the Sheyenne River provide valuable habitat for a variety of wildlife species. Game species found along the river’s riparian corridor and adjacent uplands include white-tailed deer, moose, wood duck, dabbling duck, pheasant, greater prairie chicken, turkey, squirrels and rabbits. Furbearing species and migratory non-game birds use the river corridor for breeding, feeding and migration.

In summary, the Sheyenne River provides significant and unique aquatic and terrestrial resources. It is one of the most heavily wooded areas of the State and contains one of the largest and most diverse fisheries.” (FEIS, 2003).

A 3 year mussel survey started in 2008 by Dr. Andre Delorme states:

“Freshwater mussel populations are in serious decline in many areas of North America due to pollution, placement of dams, and other factors...”

“Several points can be made from our three years of data. The western part of the state is relatively devoid of mussels. For example, our qualitative searches of the Little Missouri found no live mussels. The eastern half of the state, on the other hand, exhibited healthy populations of mussels. Specifically the Sheyenne, Maple, and Goose Rivers had good numbers of mussels with diverse populations.... Mussels are long-lived organisms that act as good indicators of water quality,”

*(A Two Phase Population Survey of Mussels in North Dakota Rivers)*(Delorme),  
*Executive Summary)*

“As a river, the Sheyenne showed the highest diversity with 11 of the 15 North Dakota species found in the river.”(Delorme, page 8)

“The site with the highest density was on the Sheyenne River, the second highest densities were found in a tributary to the Sheyenne, Baldhill Creek..... The overall average was 46.8 mussels per meter squared. .... A calculation of the number of mussels in a 100 meter stretch at the Sheyenne River site comes to over 100,000 mussels.”  
(Delorme, page 17)

“In summary, we found the overall mussel populations to be in relatively good condition in most of the state. Their future may be threatened, however, by several factors. The healthiest populations in the state, in the Sheyenne River, may soon be exposed to the highly saline waters of Devils Lake when the Devils Lake outlets begin to run at full capacity. (Delorme, Page 17)

The *Fish and Wildlife Coordination Act Report for Devils Lake Emergency Outlet 2002* contained in the FEIS, listed 44 species of fish in the Sheyenne River and only 14 in Devils Lake. 9 species of mussels were listed for the Sheyenne River, none in Devils Lake.

In *Physical Habitat, Water Quality and Riverine Biological Assemblages of Selected Reaches on the Sheyenne River, North Dakota 2010*, Lundgren et al lists 32 species of fish collected on 12 reaches of the river. 30 species are native with the white crappie and common crappie being introduced. The golden redhorse, rock bass, orange spotted sunfish, goldeye, golden shiner and spottail shiner are intolerant or sensitive to water quality and habitat degradation, turbidity or increased total dissolved solids (TDS), sulfates or chloride. The spotfin shiner, black bullheads and sand shiner were the 3 most commonly collected species and all, as insectivores, serve to support the larger game fish. They are moderately tolerant to water quality and habitat degradation and turbidity. No information was given for sensitivity to TDS, sulfates or chloride for the spotfin shiner or sand shiner.

The State Engineer presents no information indicating if the 600 cfs of combined West Bay and Devils Lake East End Outlet water, high in TDS, sulfates and sodium, alters the Sheyenne River in more than a “moderate” fashion”; nor does the State Engineer provide information on the sulfate tolerance of the 3 most numerous types of fish that support the more prized game fish. No information is presented on the effects of water quality on the many mussels population which as filter feeders, clean the water, which is important not only for aesthetics but also for supporting the general aquatic biota.

The U. S. Corps of Engineers’ FEIS evaluated the impacts on fish and wildlife in the Sheyenne River of a 300 cfs Pelican Lake outlet constrained by a 300 mg/l sulfate limit and 600 cfs total flows in the Sheyenne River. As discussed above, the water quality and water quantity impacts of 600 cfs of West Bay and Devils Lake East End Outlets constrained (somewhat) by a 750 mg/l sulfate limit in the Sheyenne River or severe flooding in the Sheyenne or Red Rivers would potentially be significantly more severe. The Corps identified the following impacts on fish and wildlife resources in the Sheyenne River resulting from the operation of a 300 cfs Pelican Lake outlet:

- “Operation of the Pelican Lake outlet would result in substantial change in the flow regime of the Sheyenne River. Discharges up to 300 cfs over a major portion of the summer would result in a five- to tenfold increase in summer/fall flows along the

Sheyenne River. Increased flows throughout the summer would result in changes in river stage on the Sheyenne and Red Rivers.” (FEIS p. 6-56)

- “. . . the outlet could result in up and down flows with sudden and extreme fluctuations in flow for much of the 50-year period of operation. These are the types of situations that make it difficult for species to adapt to habitat conditions.” (FEIS p. 6-56)
- “Operation of a Pelican Lake outlet would affect both the water quality aspects and the physical characteristics of aquatic habitat on the Sheyenne River. While water quality constituents would not exceed tolerance levels for aquatic fauna in the Sheyenne River, many constituent levels would be dramatically increased over baseline conditions. Water quality modeling indicates that the level of these constituents would increase as much as 100 percent during pumping.” (FEIS p. 6-57)
- “Changes in habitat composition and availability would result in changes in species composition and abundance. There may be some lost year classes of fish and declines in invertebrate populations.” (FEIS p.6-59)
- “The changes on the Sheyenne River in water quality, hydrology, geomorphology, and habitat could result in substantial changes in or stress to aquatic biota. . . The outlet operation would also cause loss of spawning and nursery habitat, increased erosion, and changes in channel morphology. Increases in channel width may result in less available habitat once outlet operation ceases.” (FEIS p. 6-59)
- The loss of habitat due to increased flows, changes in channel geometry, loss of overbank cover and sedimentation, coupled with changes in water quality and algal growth, would all contribute to substantial changes in the aquatic community present in the Sheyenne River. Projected water quality and quantity changes associated with outlet operation may adversely influence fish reproduction and result in lost-year classes. The threshold chloride levels for some aquatic species, such as mussels, would be approached with operation of an outlet; however, no direct effects due to increased chloride levels are anticipated. The cumulative result of all of these changes would be a decrease in diversity of aquatic species in the Sheyenne River.” (FEIS p. 6.59)
- “With the increase in flow, some change is expected in width and depth, and erosion would probably increase. Expected habitat changes include a decline of shallow pool, shallow riffle, and medium pool habitats, and an increase in fast riffle, raceway, and deep pool habitats in spring, summer and fall. Increases in summer and fall discharges reduce

the slower flowing fish nursery habitat (slow riffle, shallow and medium pool guilds.)” (FEIS p. 6-59)

- “Monthly discharge would be highly altered during summer and fall, and then decline dramatically in winter. . . Fish would be affected by the change to deep/fast less usable habitat in all seasons, and the loss of summer and fall habitat for shallow, medium and deep pool guilds. Unionids [mussels] and other invertebrates would be affected by the decrease in moderately flowing habitat. The increase in raceway and fast riffle habitat may benefit the tricopteran guild, but overall invertebrate diversity (low gradient guild) would be negatively affected. Macrophytes, although not common in this reach of the river, probably would be scoured by high flows. Unionids would most likely be affected by the dramatic decline between fall and winter flows. Many unionids would not survive these changes during outlet operation.” (FEIS p. 6-60)
- “Effects in Lake Ashtabula include reduced retention time, increased nutrient loading, increased movement of fish out of the lake, increased salinity, and increased storage of water. The outlet would reduce the storage time in Lake Ashtabula and increase turnover rate. This could affect walleye production and increased movement of some fish out of Lake Ashtabula and into downstream habitats. . .” (FEIS p. 6-60)
- “The operation of the outlet would affect river stages, groundwater levels near the river, erosion, availability of aquatic habitat, river access, and river crossings.” (FEIS p. 6-60)
- The projected changes in Total Dissolved Solids (TDS) concentrations in the Sheyenne River would also contribute to adverse impacts on aquatic resources. An evaluation of the toxicity of ambient waters from the Sheyenne River, Devils Lake, and East Devils Lake on fathead minnows, *Ceriodaphnia* spp. and algae, revealed that East Devils Lake water (TDS concentrations of about 5,700 ppm) was acutely lethal to *Ceriodaphnia* spp... The loss of food-chain organisms would cascade through the food chain, resulting in lost productivity.(FEIS p.C83)
- In summary, changes in hydrology would be significant with a Pelican Lake alternative because large amounts of water could be discharged during wet periods in the Devils Lake basin due to improved water quality. Erosion will be greater, summer nursery habitat will be less, unproductive habitat will increase in summer and fall, and change in flow magnitude between fall and winter will be greater. Therefore aquatic communities

may survive the water quality changes of the alternative, only to be affected by the change in habitat and hydrology. The changes in the aquatic community would persist for many years after outlet operation has ceased.” (FEIS pp. 6-61, 6-62)

- “After outlet operation ceases, slower flowing, shallow habitats would return and the upper reach would return to less hydrologically stable condition. In addition, after a number of years of outlet operation the channel would have changed, becoming wider and deeper, such that the reduced water levels would result in less available wetted habitat (and higher temperatures) during low flow conditions. The increased flow associated with the operation of the outlet would also alter habitat distribution and probably result in some erosion and deposition. These changes would affect habitat conditions and availability when the outlet ceases operation. Only a few small permanent tributaries drain into the upper Sheyenne River, and their suitability as unionid refugia is not known. Fish hosts are prevented from carrying glochidia [larval form of mussels] upstream past Baldhill Dam. Unless unionid refugia occur in the small tributaries, fauna is unlikely to recolonize to pre-project conditions. Fish species that benefited from increased spawning and nursery habitat associated with higher flow would be negatively affected by the lack of those habitats with lower flows. Invertebrate fauna may recover over time. However, species composition would probably differ from pre-pumping conditions.” (FEIS p. 6-62)

The U. S. Army Corps of Engineers’ FEIS determined that, with a 300 cfs Pelican Lake outlet operating under a 300 mg/l sulfate constraint and total flows of 600 cfs in the Sheyenne River:

“The annual phosphorus load to Lake Ashtabula would increase by 40 metric tons [88,000 pounds] per year during the first 10 years of operation, which is variably a 60 to 100-percent increase over base conditions.” (FEIS, p. 5-83)

The State Water Commission has provided no information on phosphorous loading of the Sheyenne River and Lake Ashtabula from its Devils Lake outlet discharging 600 cfs of West Bay and Devils Lake East End Outlet water containing 700-800 mg/l of sulfate and constrained only by a 750 mg/l sulfate limit on the Sheyenne River. However, it appears reasonable to assume that the phosphorous loading would be at least as great as and probably greater than from a 300 cfs Pelican Lake outlet constrained by a 300 mg/l sulfate limit and 600 cfs total flows in the

Sheyenne River. Sulfates affect phosphorus release, leading to a process called” internal eutrophication”

In his expert testimony as a water quality expert at Senator Byron Dorgan’s field hearing Feb 19, 2010, Professor Wei Lin stated the following regarding sulfate impacts on Lake Ashtabula:

“The impact of increased eutrophication on the aquatic ecosystem and the economy could be significant. Algal bloom will not only cause unpleasant conditions for recreational use of a lake, but blue-green algae may release toxins that makes water unsafe for human and animal consumptions. Highly eutrophic lakes typically have low oxygen level near the bottom and experience strong daily oxygen variations in the top layer. Oxygen limitation will have adverse impact on the fish population. It will cause disappearance of game fish and encourage the growth of trash fish. Impact of the increased Sheyenne River sulfate level on Lake Ashtabula is not clear and could be long term. Once a lake becomes eutrophic it is very difficult to reverse the process. I strongly support a comprehensive monitoring program on Lake Ashtabula to track the progression of sulfate level and changes in other water quality and ecological parameters. I would like to recommend establishment of a research program focusing on Lake Ashtabula water quality and its aquatic ecosystem. The research will include field sampling/surveying, experimental studies, and model simulations to understand the impact of sulfate and other environmental stressors on lake chemistry and biological processes, to predict short and long-term effects on water quality and ecosystem, and to study potential socio-economical impacts to the region. “

The March 22, 2012, inter-office memorandum indicates that the West Bay and Devils Lake East End Outlet flows are” limited by a downstream water quality constraint for the protection of aquatic life which requires sulfates to be less than 750 mg/liter.”

On September 16, 2010, the U. S. Environmental Protection Agency ruled that the State had presented sufficient evidence to allow a site specific sulfate limit on the upper Sheyenne River of 750 mg/liter. The EPA, however, declined to the State’s request to change the standards for chloride, sulfate and pH in reservoirs of any class stream from the standards of class 1 streams to the standards of that stream. This would have effectively increased the limit of chloride from 100mg/liter chloride to 175 mg/chloride on the lower Sheyenne River:

.”The Department did not review the literature to see if new scientific information is available regarding the levels of chloride, sulfate, sodium and pH that are protective of designated uses in reservoirs located on Class IA, Class II, and Class III streams. The

Department did not identify any references or documents that contain a scientific rationale for the revised criteria.”(Letter from James P. Martin, EPA Region 8 to David Glatt, ND Department of Health, September 16, 2010).

This is significant for the Sheyenne River because the FEIS states the chloride level thought to limit unionids [mussels] is 100 mg/liter. (p52). The chloride level in East Devils Lake is 210 mg/liter, West Devils Lake 100mg/ liter (*Chemical, Physical and Biological Characterization of Devils Lake 1995 -2010*, Peter Wax, p 6-8).The Sheyenne River chloride level above the West Bay Devils Lake outlet was 19.6 mg/liter (Wax p7, 54). The Department of Health has not presented any evidence that the 750 mg/liter sulfate standard is indeed protective of the aquatic biota.

The Department of Health has declared 750mg/liter sulfates to be the new standard for the entire Sheyenne River. Modeling by Joel Galloway (*Simulation of the Effects of the Devils Lake State Outlet on Hydrodynamics and Water Quality in Lake Ashtabula, North Dakota, 2006–10*) shows that for those years, between 0 and 105 days annually over the 750 mg/liter limit would have resulted from adding 500 cfs “blended” West Bay and East Devils Lake water, with an end concentration of 800mg/liter sulfates; if the combined Devils lake water resulted in a 1000 mg/liter sulfate blend, the 750mg/liter limit would have been exceeded between 157 and 220 days annually. Since the sulfate level in the West Devils Lake was measured to be 580mg/liter and the sulfate level in East Devil’s Lake water was about 1100mg/liter sulfate (Wax pp 6-8), a 600 cfs blend would result in about 880 mg/liter sulfate concentration. There are no provisions in the operating plans of the East or West Devils Lake outlets to turn off the pumps if the 750 mg/liter sulfate standard is exceeded.

The State Engineer has neither provided nor cited results of investigations of the impacts on the fish and wildlife resources of the Sheyenne River of operation of the Devils Lake East End Outlet and West Bay Outlet at a combined 600 cfs constrained only by a 750 mg/l sulfate limit in the river. Indeed, the 750mg/liter limit will be exceeded frequently according to the Galloway study. Furthermore, the Department of Health has not cited or provided any evidence that addresses the EPA’s concern about lowering the standards for chloride. The State Engineer has not provided any evidence that the adverse impacts of a 600 cfs flow of 880 mg/liter sulfate will not be even more severe than those identified by the U. S. Army Corps of Engineers for a 300 cfs Pelican Lake outlet constrained by a 300 mg/l sulfate limit and 600 cfs total flows in the Sheyenne River.



Addendum to 3.5:

The intra-office memo states that a rock filter will minimize the transfer of biota from Devils Lake into the Red River. Yet the Devils Lake-Red River Basin Fish Parasite and Pathogen Report by Mike Renouf and Col. Michael Price (2012) states:

“The fish parasites and pathogens in Devils Lake could be transferred from the Lake through the gravel and rock filter currently in place by birds, by unintentional or intentional transfer by people (or their boats).”

And they advised:

- “Adopt a proactive model and precautionary approach to prevent and monitor transfer of invasive species and certain fish pathogens into the Hudson Bay Basin.
- Use the data gathered in the present study to conduct a risk assessment to fish in the Red River Basin from the parasites and pathogens found throughout the Red River basin, including Lake Winnipeg [Phase II].
- A fish parasites and pathogens monitoring program should be established based on selected and restrictive criteria. A workshop could be held to develop protocols, methods, and short and long-term monitoring goals.
- State and provincial agencies should continue to maintain and to improve surveillance procedures to prevent transfer of organisms into the Hudson Bay Basin.
- The science literature and other information should be regularly reviewed by the IRRB and member agencies to identify those organisms that are extending their range toward the Hudson Bay.
- Implement a project to determine the route of transfer, rate of spread, and the distribution of the Asian tape Worm in the Hudson Bay Basin.”

No monitoring study is mentioned in the mitigation plan.

### **3.6 The project's impact on agricultural lands.**

The U. S. Army Corps of Engineers' FEIS identified the following impacts to agricultural lands along the Sheyenne River resulting from operation of a 300 cfs Pelican Lake outlet constrained by a 300 mg/l sulfate limit and 600 cfs total flows in the Sheyenne River:

- “As in the case of an overflow, farms that withdraw water from the Sheyenne River or the Red River for irrigation could suffer reduced crop yields from the lower river water quality associated with an outlet. Exacerbated flooding in the Sheyenne River could damage agricultural property, including lands, equipment and structures. . .” (FEIS p. 6-49)
- “An outlet from Devils Lake could diminish property values along the Sheyenne River. The potential adverse impacts to property values would be based on damage in the riparian zone, exacerbated flooding risks, and reduced water quality for agriculture or recreation.” (FEIS p. 6-49)
- “Induced flood plain salinization resulting from the rising water tables of floodplain and adjacent soils in the Sheyenne River above a ‘critical depth.’” (FEIS p. 6-67)
- “Additional salt loading to the floodplain could result from both overbank flooding with mixed Devils Lake/Sheyenne River water and intrusion of this water into adjacent floodplain soils as infiltrated floodwater and groundwater flow. Seepage outflow of mixed Devils Lake/Sheyenne River water could produce additional salt loading to adjacent floodplain soils during periods when the river is contained within the channel.” (FEIS p. 6-67)
- “The outlet would result in increased salinity hazards associated with use of the water for irrigation purposes.” (FEIS p. 6-72)
- The impact area on the Sheyenne River is defined by the flooded area outline, area of water quality and flow effects, and area of groundwater influence (¼ mile from the river). (FEIS C36)

Since approximately 400 miles of river bank exists between the West Bay Devils Lake Outlet and the confluence of the Red River, a ¼ mile impact area on each side of a river bank equals 200 square miles or 128,000 acres of Sheyenne Valley impacted.

The impacts on agricultural lands along the Sheyenne River resulting from the operation of combined 600 cfs Devils Lake outlets constrained (and only somewhat) by a 750 mg/l limit sulfate concentration or major flooding in the Sheyenne River obviously would be much more severe than those of a 300 cfs Pelican Lake outlet constrained by a 300 mg/l sulfate limit and 600 cfs total flows in the Sheyenne River. However, the State Engineer has neither provided nor cited results of investigations qualifying and quantifying those impacts.

### **3.7 Whether easements are required.**

Because the evidence is unequivocal and unrefuted that operation of the East and West Devils Lake outlets at 600 cfs will flood and adversely affect downstream lands, it is instructive to note what the U. S. Army Corps of Engineers' FEIS stated about the need for easements for a 300 cfs Pelican Lake outlet constrained by a 300 mg/l sulfate limit and 600 cfs total flows in the Sheyenne River:

The cost of easements along the upper Sheyenne River, sufficient to cover projected out-of-bank induced flooding between the outlet of the pipeline at Peterson Coulee and Lake Ashtabula, is estimated to be \$3,810,000. Approximately 191 owners may be involved. These owners would include the Fort Totten Reservation and the State of North Dakota. Administrative costs appear high because of the large number of owners (191), and anticipated large number of condemnations, and a higher contingency because of the uncertainties in this project. Current data and projections indicate minimal to no appreciable impacts downstream of Lake Ashtabula; thus there is little to no discernable need for flowage easements in that section." (FEIS pp. 7-10, 7-11)

The January 6, 2012 letter from John Kelsch, ND SWC construction chief to Paul Becker, Ramsey County Water Resource Board contains information from a hydraulic model from the Army Corps of Engineers. For a Sheyenne River flow of 600 cfs 5,849 acres will be inundated, for 700 cfs flow 6342 acres will be flooded and for 800 cfs, 7024 acres will be flooded. However, the state will handle this on a case by case basis post event basis. Their procedure is:

“Flowage easements with adjacent landowners may be pursued where occasional over bank flooding is likely to occur, none are planned at this time, but rather through the mitigation plan each location and occurrence will be compensated for any damages caused by the operation of the outlets”

It is important to note again that under NDCC 61-32-03:

“ . . . the water board **may not issue a permit until flowage easements are obtained.**”  
(Emphasis added)

### **3.8 Other factors unique to the project**

A great concern about adding Devils Lake water to the Sheyenne River is the adverse impacts on water quality and the increased cost of water treatment for those utilizing the Sheyenne River for their municipal supplies. (MacPherson, 2009; Oleson, 2009; Bonham, 2009; Associated Press, 2009a, 2009b, 2009c; D. Olson, 2009; Schmidt, 2009a, 2009b; Browne, 2009; Wetzel, 2010).

However, it is not just municipal water supplies that are affected by operation of the Devils Lake outlet. The U. S. Army Corps of Engineers stated, regarding the Pelican Lake Outlet constrained by 300 mg/liter sulfate level and 600 cfs total flow 450, that:

“Interviews were conducted with all of the industrial river water users along the Sheyenne River and Red River of the North. Two were expected to incur increased costs as a result of the Devils Lake outlet operations. The sugar beet processing facility is expected to have increased lime softening costs as a result of the outlet. The coal-fired power plant’s increased costs relate to additional need for ion exchange water purification for boiler water. On the basis of one of the sample water quality data sets, annualized costs would be expected to be \$1,200 per year for the sugar beet processing facility and \$30,700 per year for the power plant. (FEIS p. 6-52)

First, as a fundamental consideration, it is important to note that North Dakota Administrative Code § 33-16-02.1-02 dealing with **Standards of Quality of Waters of the State** states explicitly, in part, that:

“The state and public policy is to maintain or improve, or both, the quality of waters of the state and to maintain and protect existing uses. . . **Waters not being put to use shall be protected for all reasonable uses for which these waters are suitable.**” (Emphasis added)

Prior to operation of the Devils Lake outlet, the waters of the Sheyenne River downstream from the outlet were suitable for use as domestic or municipal water supplies, and they are being used as a municipal water supply by eight communities downstream from Baldhill Dam. Increasing the level of sulfate in the Sheyenne River as a result of operation of the outlets will cause those waters no longer to be suitable for domestic or municipal water supplies in Valley City and Fargo/West Fargo at the very least—a clear violation of State policy.

It is true that sulfate levels have occasionally exceeded 450 mg/l in some “spots” in the Upper Sheyenne River, but most of those have been in the extreme Upper Sheyenne River above the West and East Devils Lake outlets. For example, Schuh and Hove reported that:

“ . . . sulfate samples at Warwick [30 miles downstream from the Devils Lake outlet] never exceeded 300 mg/L before 2000 and did so only about 25% of the time after 2000. Harvey samples [approximately 30 miles upstream from the Devils Lake outlet], however, exceeded 300 mg/L about 40% of the time during the 1990s, and were below 300 mg/L only three times following the year 2000. . . ” (Schuh and Hove, 2006)

Data presented in their report show that the maximum levels of sulfate reached in the Sheyenne River at two Harvey sites were 480 mg/l and 610 mg/l, but the maximum levels reached at two Warwick sites were 230 mg/l and 307 mg/l (Schuh and Rove, 2006). The sulfate levels in the Sheyenne River downstream of the West Devils Lake outlet never reached 450 mg/l before July 2009 when the North Dakota Department of Health vacated the North Dakota Pollution Discharge Elimination System permit it had issued for the outlet and implemented an emergency rule increasing the sulfate limit in the Upper Sheyenne River from 450 mg/l in order to allow the outlet to discharge 100 cfs of water from West Bay containing 600-700 mg/l of sulfate.

The State Water Commission has paid 20 million dollars for an ultra-filtration plant in Valley City required to treat the high sulfate concentration in the Sheyenne River resulting from operation of the Devils Lake outlets. West Fargo and Fargo are in the midst of a pilot run to prepare for their upgrade as these cities use the Sheyenne River for drinking water about 6 month out of the year.

“The city of Fargo is spending millions of dollars to keep our drinking water safe in the future. The Fargo Water Treatment Plant is testing the latest technology to sift sulfates out of our drinking water. The pilot project is set to last many months and cost anywhere from \$1 million to \$30 million or more.

The problem is that the plant can't treat water with a high amount of sulfates. They don't have the technology. So they're studying what systems work, and what treatment technology will be the best bang for their buck.

Ron Hendrickson – Plant Superintendent: "We're just a little concerned about the idea of switching from one source, the Red River, to another the Sheyenne, and the levels being higher in the Sheyenne."

Once more water is released from an east-end outlet on Devil's Lake, sulfate levels here will soar. Levels in the Sheyenne are low right now, so they don't have anything to worry about... yet.

Ron Hendrickson: "The Sheyenne is a very important water source for us."

But, eventually sulfates will increase from 250 parts per million to more than 700, making drinking water unsafe.” Kelsey Roseth ,WDAY website. October/18/2011)

The State Water Commission again will pay for the plant, an estimated 70 million dollars. The cost of treating the water rises with the increase in sulfate level and will be borne by the users. These costs have not been estimated. All of these additional water treatment expenditures are made necessary by the increased levels of sulfate in the Sheyenne River caused by operation of the Devils Lake outlet.

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## CONCLUSIONS

North Dakota Governor and State Water Chairman Jack Dalrymple submitted Application to Drain No. 3863 to the Ramsey County and Towner County Water Resource Boards for a permit to allow 350 cfs to pump from the already constructed East Devils Lake outlet. The stated intention is to combine this with 250 cfs from the West Devils Lake outlet to produce a net flow of 600 cfs. However, the State Water Commission has failed to provide or to cite the results of the investigations required by North Dakota Century Code § 61-32-03 to disclose whether the quantity of water which will be drained from Devils Lake will flood or adversely affect lands of downstream landowners. The State Water Commission also has failed to obtain flowage easements from the downstream landowners whose lands will be adversely affected, as required by NDCC § 61-32-03.

The State Water Commission also has failed to provide any substantive information regarding the volume of water proposed to be drained and the resulting impact on the Sheyenne River, regarding adverse impacts that may occur to the lands of lower proprietors, regarding the project's impact on flooding in the project watershed, regarding the project's impact on waters having recognized fish and wildlife values, regarding the project's impact on agricultural lands, regarding easements that will be required, and regarding other factors unique to the project that would permit the Ramsey County and Towner County Water Resource Boards to evaluate the application objectively under the provisions of North Dakota Administrative Code § 89-02-01-09.2.

Although the State Water Commission has failed to provide substantive information to enable the Ramsey County and Towner County Water Resource Boards to discharge their responsibilities in evaluating the application under NDCC § 61-32-03 and NDAC § 89-02-01-09.2, the preponderance of the evidence available from investigations conducted by other agencies, notably the U. S. Army Corps of Engineers, unequivocally demonstrates that increasing the total flow of the Devils Lake outlets to 600 cfs will adversely impact the Sheyenne River, flood and adversely affect the lands of lower proprietors, adversely impact fish and wildlife, adversely impact agricultural lands, increase downstream municipal water treatment costs.

Because the State Water Commission has failed to conduct the investigations and to provide the information required under NDAC § 61-32-03 and NDAC § 89-02-01-09.2 and because the available evidence confirms the proposal to increase the flow of its Devils Lake outlets to 600

cfs is devoid of merit or justification, the Ramsey County and Towner County Water Resource Boards and State Engineer have no alternative under the applicable statutes and regulations except to deny the Governor's Application to Drain No. 3863.